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ABSTRACT

The "General Report" and "Executive Summary" provide information about the performance of the public school system of Utah. The Utah Statewide Educational Assessment (USEA) Program began in 1975 and has continued every 3 years through the April 1990 assessment, to be replaced in fall 1990 by a new testing program. The new program will test all students at grades 5, 8, and 11. The USEA provides information in the following areas: (1) achievement by Utah students; (2) how demographic factors influence achievement; and (3) instructional practices that result in high student achievement. The "General Report" presents the procedures and results of the sixth USEA in 1990. The "Executive Summary" summarizes the procedures and results of the sixth USEA and highlights changes and recommendations for change. Both volumes provide data on student outcomes, school classifications and student demographic characteristics, and perceptions of educational processes. The 1990 USEA tested over 5,000 fifth graders in 65 elementary schools and over 2,500 11th graders in 32 high schools. At the fifth-grade level there were five significant positive changes since 1987 and two areas of decline (language expression and academic learning time). For grade 11, four areas showed significant gains, and none declined. The "General Report" contains 38 exhibits, primarily student scores, a list of 17 references, and 1 appendix of 1990 data. The "Executive Summary" lists 12 references and contains 9 exhibits. (SLD)

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1975-1990

EXECUTIVE SUMMARY

Utah Statewide

EDUCATIONAL ASSESSMENT

Jay B. Taggart
State Superintendent
of Public Instruction

Utah State Office
of Education

250 East 500 South
Salt Lake City, Utah
84111

TM 017 851

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UTAH STATEWIDE EDUCATIONAL ASSESSMENT

EXECUTIVE SUMMARY REPORT

1975 - 1990

UTAH STATE OFFICE OF EDUCATION

Jay B. Taggart
State Superintendent of Public Instruction

Bruce Griffin
Associate Superintendent, Strategic Instructional Services

David E. Nelson
Coordinator, Evaluation and Assessment

John D. Ross
Specialist, Evaluation and Assessment

THE INSTITUTE FOR BEHAVIORAL RESEARCH IN CREATIVITY (IBRIC)

Robert L. Ellison, Research Director

By

David G. Fox, David E. Nelson, Robert L. Ellison,
Marita L. Fairfield, and John D. Ross

October, 1990

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FOREWORD

The Statewide Educational Assessment Program began in 1975 and has continued through the April 1990 assessment. A 1990 Utah law created the new State Testing Program which begins this fall and replaces the Statewide Assessment. The new program will test all students at grades 5, 8, and 11.

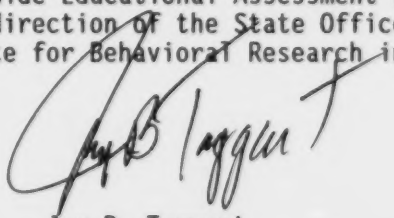
This report presents a summary of the procedures and results from the sixth Utah Statewide Educational Assessment. It is hoped that this summary in conjunction with the General Report and technical documentation produced from the study will provide appropriate information to both educators and the general public about the performance of Utah's public school system.

The State Board of Education and its staff are committed to providing a quality education for each student in Utah's public school system. Related to this commitment is the need for monitoring of performance of the public schools in various ways. It is our conviction that assessment of student performance is central to making progressive changes in the educational system.

The 1990 Statewide Assessment effort involved the testing of students from random samples of both elementary and high schools. Over 5,000 fifth grade students in 65 elementary schools and over 2,500 eleventh grade students in 32 high schools took part in the study.

We believe this Executive Summary Report, along with the other reports which were produced from the study, provide a comprehensive examination of student performance across the state of Utah in respect to both important traditional academic areas as well as other important goals of education in Utah.

The entire 1990 Utah Statewide Educational Assessment Program was developed and refined under the direction of the State Office of Education with assistance from the Institute for Behavioral Research in Creativity.



Jay B. Taggart
State Superintendent of Public Instruction

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UTAH'S 1975-1990 PROGRAM OF STATEWIDE EDUCATIONAL ASSESSMENT AND THE TRANSITION TO THE NEW STATEWIDE TESTING PROGRAM

This report summarizes the results from Utah's sixth comprehensive statewide educational assessment conducted in April of 1990. For fifteen years the Utah Educational Assessment program has provided an analysis of the strengths and weaknesses of public education in key areas of educational endeavor across the state. Many different groups have contributed to the design and development of the assessment program, including the Utah Legislature, the State Board of Education, the State Superintendent and his staff, local district superintendents, school administrators, and teachers. As of the fall of 1990 Utah has implemented a new Statewide Testing Program which will take the place of Statewide Educational Assessment.

Over the years with Statewide Assessment, three different types of information have been collected: student outcomes, school classifications and student demographic characteristics, and perceptions of educational processes. The purposes behind the collection of information in these three general categories were to provide: 1) an accurate picture of achievement by students in Utah's public schools; 2) an indication of how certain demographic factors influence the way students achieve; and 3) insight into instructional approaches and techniques which result in high student achievement. While no one study could accomplish any of these three purposes exhaustively, as in the past, the present study provides very sound indicators in each of these three areas.

RELATED STUDIES

In addition to the Statewide Educational Assessment program, the Utah State Office of Education has produced a series of reports entitled Utah Educational Quality Indicators. These reports (published in 1967, 1971, 1974, 1979, 1983, 1986, and 1989; see for example, Nelson & Ross, 1989) have brought together valuable information from various sources, and have provided longitudinal information about academic achievement in Utah based on several testing programs.

In the 1990 ACT results, only the English, Mathematics, and Composite scores were available due to the introduction of a new test format by the publisher. The 1990 results showed decreases in the English scores of both Utah and national students compared to one year before; however, Utah students were still above the national average in English and on

the Composite score. National scores on the Mathematics test declined from 1989 to 1990, while Utah scores remained stable and slightly below the national average (Nelson, 1990).

These patterns of test scores are informative, but national attention in the educational literature appears to be shifting to a new focus: how to prepare students for the future work place in an emerging global economy (Strategic Planning Commission, 1988; Reich, 1988; National Center on Education and the Economy, 1990; Mullis, Owen, & Phillips, 1990). These reports argue that the present U.S. educational system does not provide enough emphasis on integration of basic skills, enhancement of critical thinking skills, developing the ability to coordinate with other people, etc., processes viewed as vital for preparing students to perform well in the future work environment. In addition to assessing academic performance on achievement tests, the Utah Statewide Educational Assessment program provides information on Independent Development, Peer Relations, Career Awareness and Exploration, and other skill areas related to future occupational needs.

KEY CHARACTERISTICS OF THE ASSESSMENT PROGRAM

Utah's Statewide Educational Assessment program provides:

(1) Statewide information on how Utah's students perform in specific basic achievement areas.

(2) Statewide information on the standing of Utah students on other largely non-cognitive goals of education including Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity.

(3) An examination of the relationships between important demographic and educational process variables and specific educational outcomes.

(4) Information for the schools sampled in the Statewide Educational Assessment project which will aid the teachers and administrators in those schools in making educational decisions.

The design of Statewide Educational Assessment *does not*:

(1) Allow for the comparison of individual school districts.

(2) Evaluate individual teachers.

(3) Allow for the direct evaluation of special programs.

(4) Measure everything of importance relative to the educational system.

(5) Provide information about the causes of educational achievement.

These are beyond the scope and purpose of Statewide Educational Assessment. Utah's new Statewide Testing Program, initiated in the fall of 1990, will provide profiles of achievement test results for every district and every school in the State at Grades 5, 8, and 11.

PROCEDURE

A total of six Utah Statewide Educational Assessments have been conducted. These assessments, carried out every three years since 1975, have been concerned with five educational goals drawn from the Goals and General Objectives of Education in Utah (Utah State Board of Education, 1973): Intellectual Maturity, Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity. Goals such as these provide a general definition of educational attainment, and underlie the formulation of more specific and instructionally-oriented objectives in the schools of the state. The 1990 assessment measured student outcomes in each of these five goal areas based on procedures developed in earlier assessments (see Ellison, Nelson, Abe, Fox, & Coray, 1975; Ellison, Nelson, Fox, & Abe, 1978; Ellison, Nelson, Guest, & Fox, 1982; Guest, Nelson, Ellison, & Fox, 1985; and Guest, Nelson, Ellison, & Fox, 1988).

In addition to measuring student outcomes, the 1990 assessment, like those in previous years, obtained information on factors which influence outcomes. In part, this information consisted of student and school demographic characteristics, including geographical designations, socioeconomic status, and a variety of other specific descriptors.

Information was also obtained about educational processes -- factors which describe certain key activities within the classroom, such as expectations for student achievement, academic learning time, reinforcement of self-concept, and development of career talents. A list of the measures used in the 1990 study is presented in Exhibit 1.

The students who participated in the 1990 Statewide Educational Assessment program were in the fifth and eleventh grades. These grades were chosen because they are close to the end of the elementary and secondary levels but the students would typically still be in the same school setting a year later. Consequently, participating students and schools could benefit from the feedback given to schools by the project.

EXHIBIT 1
MEASURES USED IN THE 1990 ASSESSMENT

INTELLECTUAL MATURITY

From the Comprehensive Tests of Basic Skills, Fourth Edition:

- Reading Vocabulary
- Reading Comprehension
- Language Expression
- Mathematics Computation
- Mathematics Concepts and Applications

Mathematics Class Experience (Grade 11 only)

EMOTIONAL MATURITY

Academic Self-Concept

SOCIAL MATURITY

Peer Relations

Extracurricular Activities (Grade 11 only)

AESTHETIC MATURITY

Art Achievement (5 items only)

Music Achievement (5 items only)

PRODUCTIVE MATURITY

Independent Development

Career Awareness and Exploration (Grade 11 only)

Career Development Experiences (Grade 11 only)

ATTITUDE TOWARD SCHOOL

Enjoyment of School

EDUCATIONAL PROCESSES

Reinforcement of Self-Concept

Development of Career Talents

Expectations

Academic Learning Time

Feedback

DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS

Socioeconomic Status (Financial and Educational)

Sex

Race

School Locale

School Size

Stratified random samples of 65 elementary and 32 secondary schools were chosen. Each sample was representative of the populations of elementary and secondary schools throughout Utah. Representativeness was evaluated by examining both the sample and the population on such variables as school size and location. Approximately 5,000 fifth grade students and 2,500 eleventh grade students were tested.

REPORTING OF RESULTS

Since different groups, including legislators, professional educators, and the public have different needs relating to the information produced from this study, several types of reports have been produced to meet the needs of specific audiences.

Reports Provided to Each School in the Sample

(1) Student Feedback Reports described each student's performance on the Reading, Language Expression, and Mathematics achievement tests given as part of the study.

(2) School Achievement Test Reports provided results for Reading, Language Expression, and Mathematics, based on the average scores of all students taking the tests in the school. These averages were compared to national norms.

(3) School Feedback Reports presented the school's average results on all the major measures, including Reading, Language Expression, Mathematics, Academic Self-Concept, Peer Relations, Independent Development, Enjoyment of School, measures of educational processes, etc. These were presented in comparison to the state's averages, and were adjusted for demographic and school characteristics.

Reports Presenting the Combined Results for the Entire State

(1) The General Report, directed at general educational audiences, features the basic descriptive and research-oriented results.

(2) The present Executive Summary reports the most important aspects of the entire study for people such as Board of Education members, legislators, and others with significant interest but limited time.

(3) A concise summary which briefly highlights key aspects of the study for use by the media in communicating results to the general public.

(4) Technical documentation presenting in-depth methodology and statistical results.

These various approaches to reporting results deliver the most meaningful level of information to each target group.

The balance of this Executive Summary presents major findings from specific scales, the overall pattern of results, and a summary of all the results and recommendations from the assessment. More complete descriptions of the methodology and results are presented in the 1990 General Report.

MAJOR FINDINGS

This section of the Executive Summary presents major findings from specific scales chosen from the educational goal areas. Findings from all the scales are summarized in a later section of this report.

BASIC SKILLS ACHIEVEMENT

Exhibits 2 and 3 present, respectively, the fifth and eleventh grade results from the Reading, Language Expression, and Mathematics tests of the Comprehensive Tests of Basic Skills (CTBS), Fourth Edition. The main purpose of these two exhibits is to illustrate how Utah performance has changed across time. The most recently published (1988) national norms are also presented in these exhibits. Since these norms and the form of the CTBS were new to the 1990 Utah Statewide Educational Assessment, the results provide an opportunity for looking at past results and the current standing of Utah's students in terms of more up-to-date national standards.

EXHIBIT 2
UTAH RESULTS ON COMPREHENSIVE TESTS OF BASIC SKILLS, GRADE 5

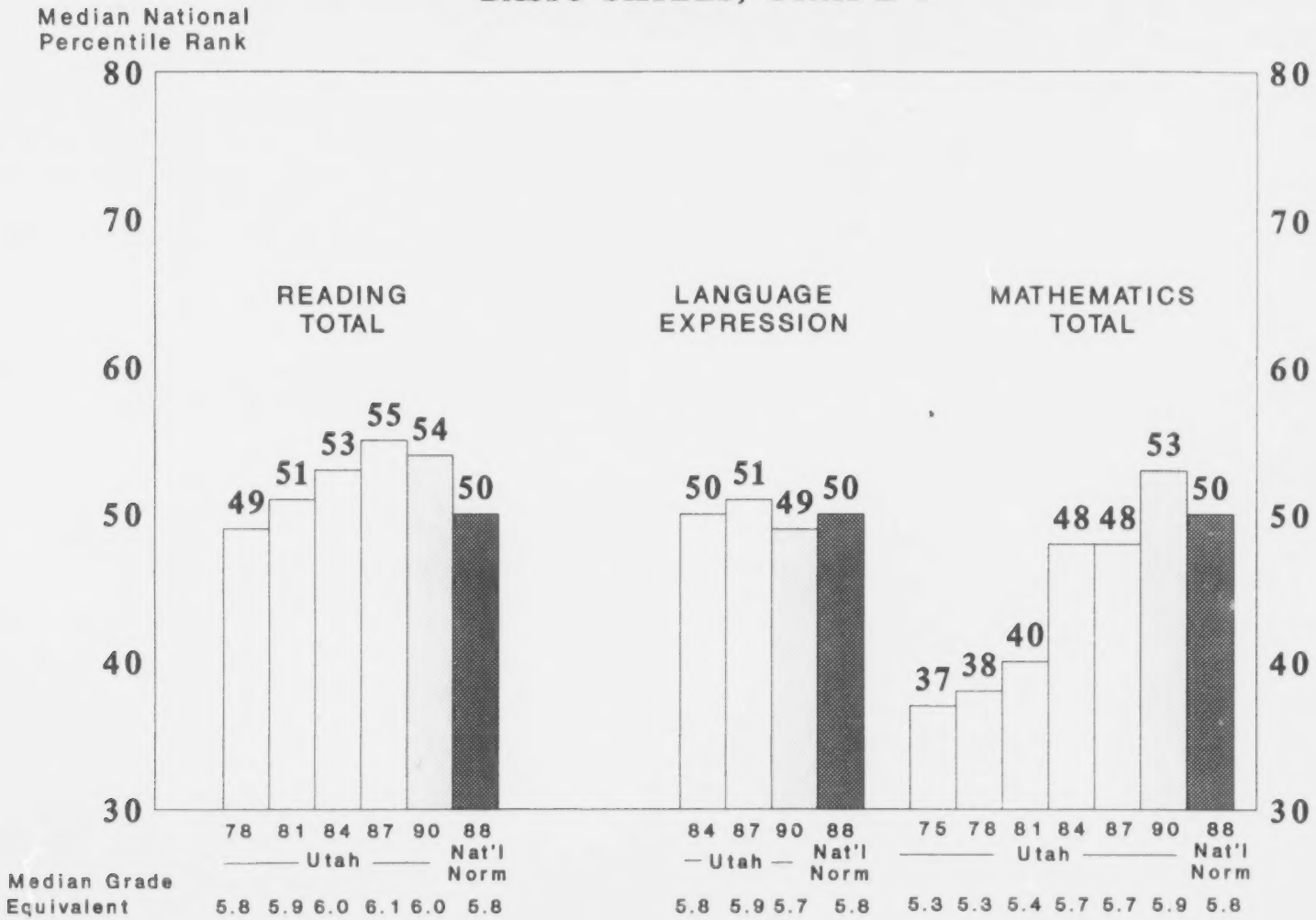
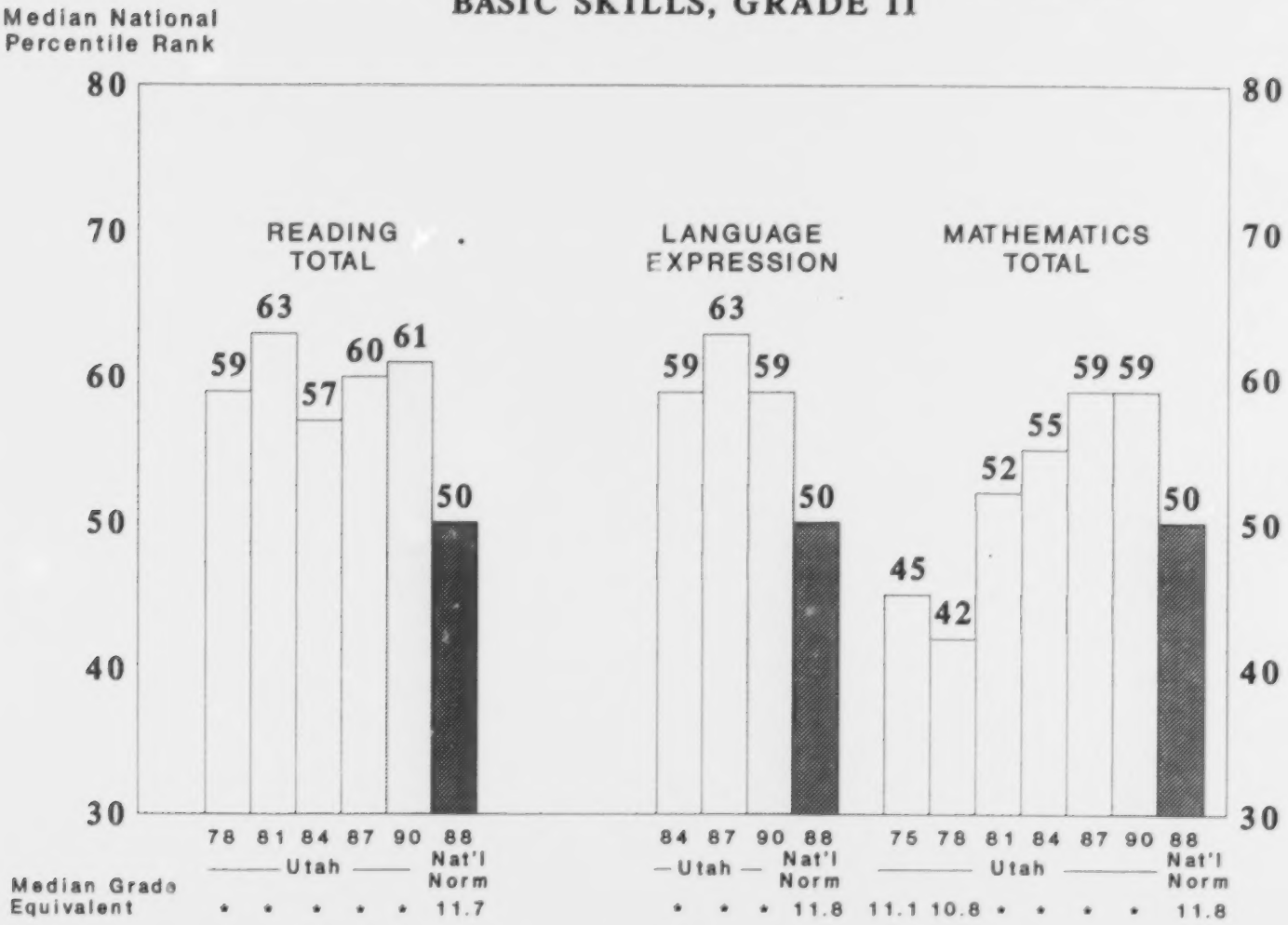


EXHIBIT 3
UTAH RESULTS ON COMPREHENSIVE TESTS OF BASIC SKILLS, GRADE 11



•Exceeded 12.9, the highest score of the published scale.

Grade 5

Exhibit 2 presents the available longitudinal results on fifth grade Utah students for the Reading Total, Language Expression, and Mathematics Total scores along with the most recent national norms. Median national percentile ranks, based on the 1988 norms, were used to allow comparisons across years (when different forms of CTBS were used), to enable meaningful comparisons across score areas, and to express results on a metric readily understood and familiar to educators. For the national norms, of course, the median national percentile rank for any score area should be 50, meaning that in the national norm group a "typical" or "average" student would score at the 50th percentile--higher than 50% of the national sample. For the Utah results, a median national percentile rank in 1990 of 54 (as for Reading) would indicate that the typical student in Utah scored at the 54th percentile--higher than 54% of the national sample. Exhibit 2 shows a modest trend of growth in the Reading Total scores since 1975 when the tests were initiated in Utah Statewide Educational Assessment. Utah students now stand at the 54th percentile nationally compared with the 1988 national norm sample. In Language Expression, no growth has occurred since 1984; Utah students in 1990 now stand at the 49th percentile in relation to the 1988 national norm sample. In the case of the Mathematics Total score, the results indicate that although Utah students have increased their performance since 1975, so, too, have students nationally; the 1990 results show that Utah students are currently scoring at the 53rd percentile, slightly above the national norms.

The median grade equivalent scores presented at the bottom of Exhibit 2 show an alternate way of viewing the same results. Utah students in 1990 on the Reading Total score were scoring at a grade equivalent of slightly higher than the national norm of 5.8. For Language Expression, the grade equivalent was 5.7, and for the Mathematics Total score, the grade equivalent was 5.9. All of these results combine to show a pattern of achievement by Utah students in 1990 that is near or slightly above the national norm sample.

Grade 11

The eleventh grade longitudinal results for the Reading Total, Language Expression, and Mathematics Total scores are presented in Exhibit 3. The general impression for all three scores is one of moderate growth across time, somewhat superior results over the 1988 national norms, and little change between 1987 and 1990. The Utah sample of eleventh grade students in 1990 scored at the 61st percentile on the Reading Total score, the 59th percentile on Language Expression (the only decline since 1987), and at the 59th percentile on the Mathematics Total score. While the overall level of performance is rather high compared to the national average, there was no change between 1987 and 1990.

The median grade equivalent scores shown at the bottom of Exhibit 3 present the same information from a slightly different perspective. For example, for Reading, Language, and Mathematics, the 1990 grade equivalents were above grade 12.9 (and off the published scales), indicating that a typical Utah eleventh grade student performed on these tests better than a typical high school graduate nationwide.

STUDENT ATTITUDES AND OTHER CHARACTERISTICS

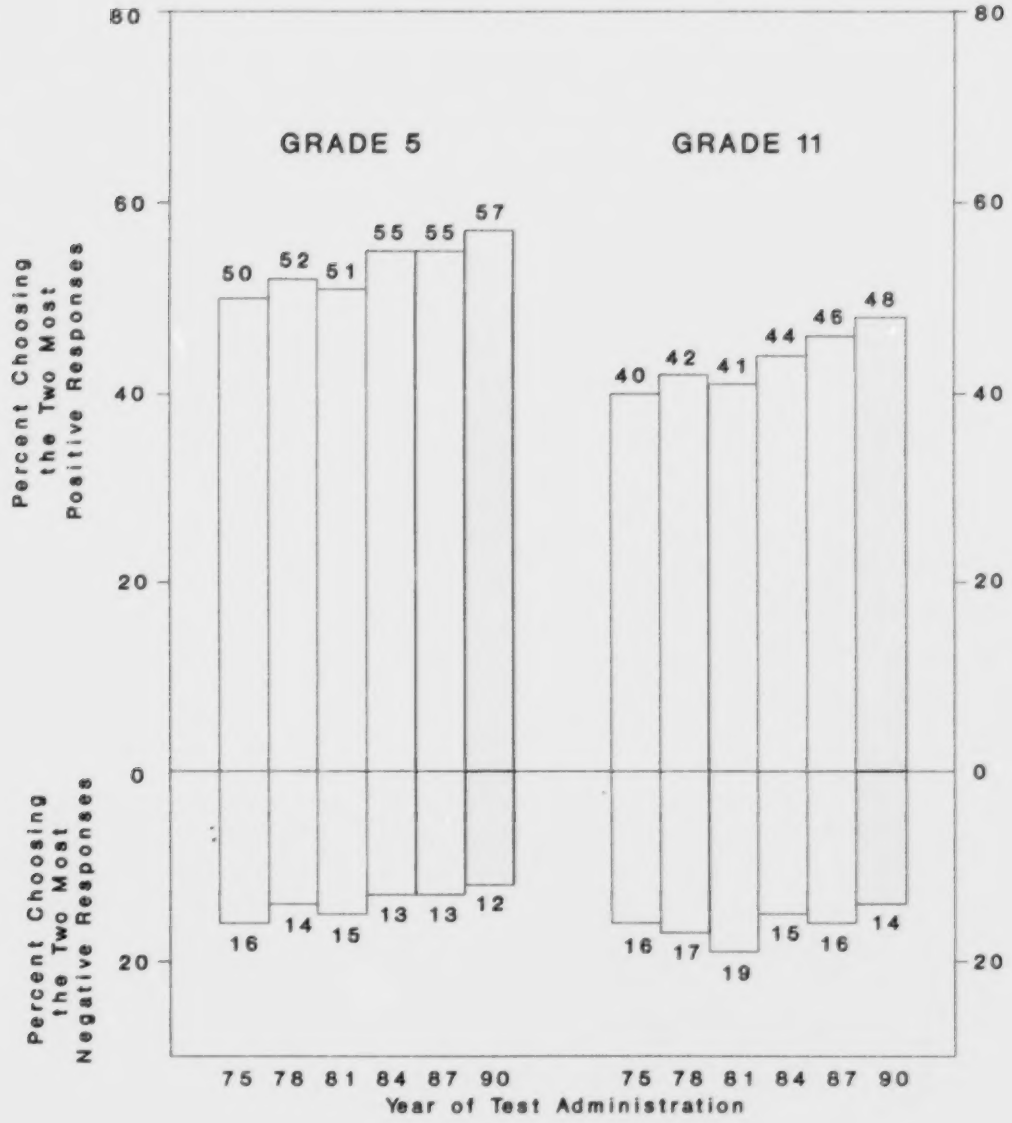
In keeping with the goal-based philosophy of Utah Statewide Educational Assessment, several other measures were used to assess student educational outcomes in goal areas other than the basic skills and intellectual maturity. These other goal areas address important aspects of development that help students realize their potential as adult citizens. Results based on selected scales from these goal areas are presented in Exhibits 4, 5, 6, and 7.

Exhibit 4 presents the results from the Academic Self-Concept scale which has been used in all of the assessment studies since 1975. The results reveal a general pattern of modest growth at both Grade 5 and Grade 11. In 1990, 57% of the Grade 5 students chose the two most positive responses, and at Grade 11 the percentage was up to 48%. These results are the most positive obtained in 15 years of testing. As described in the bottom of the exhibit, the scale reflects students' confidence in their academic abilities by asking them to respond to items describing their ability to learn things quickly, plan, persevere, work independently, and remember. Certain teacher strategies which emphasize positive reinforcement were associated with high scores on this scale and thus appear to be effective for developing students' self-esteem. This area warrants continued attention by Utah's educators even though impressive progress has been achieved compared to previous years' results.

Exhibit 5 presents longitudinal results for the Peer Relations scale for Grades 5 and 11. The percentage of students endorsing the two most positive alternatives on items dealing with interpersonal skills has increased rather consistently since 1975; the results are particularly impressive for the eleventh grade. In 1990, 58% of the eleventh grade students chose the positive alternatives, an all-time high since Statewide Assessment testing was initiated in 1975.

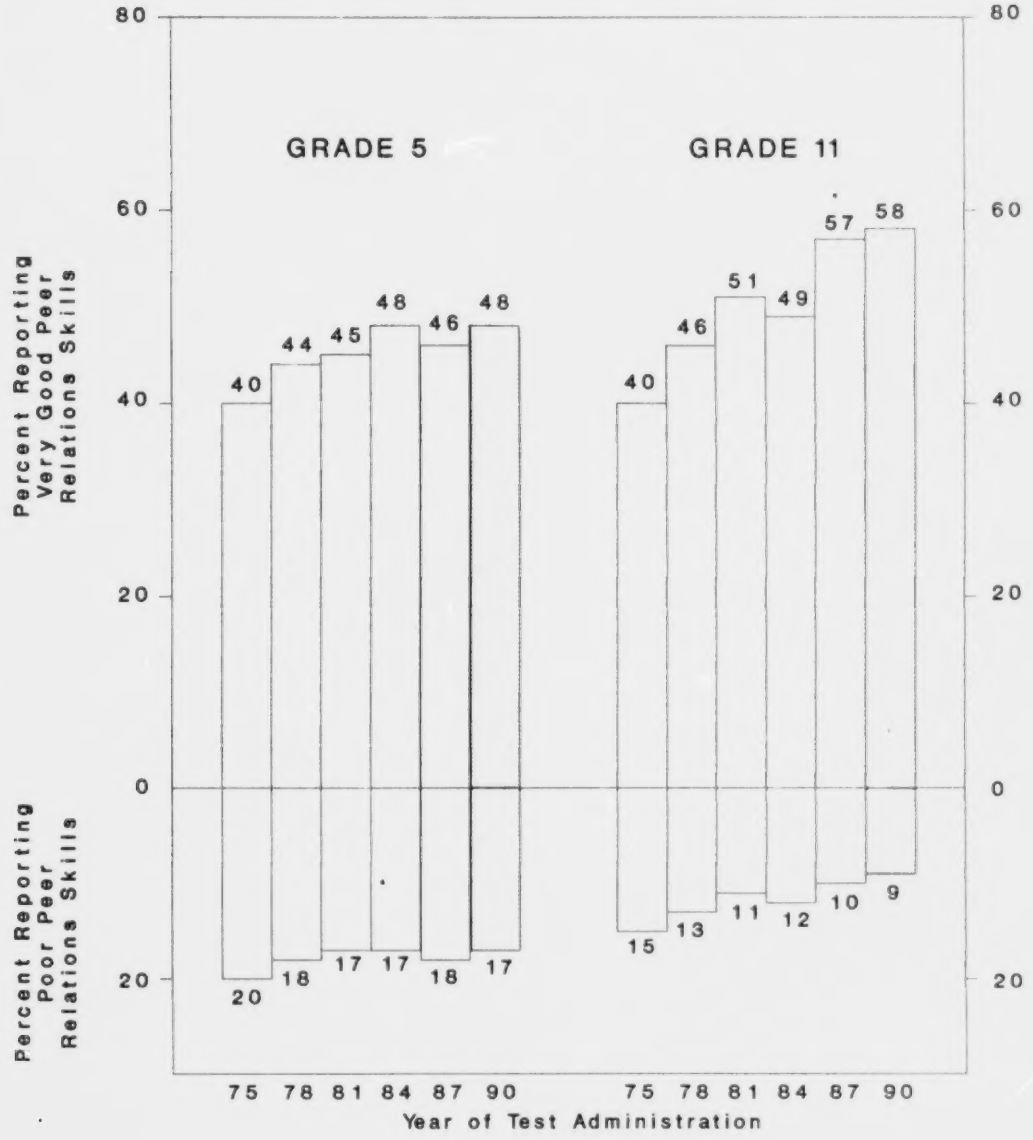
Exhibit 6 presents the results from the Career Development Experiences scale at Grade 11. This scale focuses on career development activities and experiences provided by the school, an important part of student preparation for high school graduation and a productive adult life. Although in 1987 there was a visible decline in scores, as is illustrated

EXHIBIT 4
RESULTS FROM THE ACADEMIC SELF-CONCEPT SCALE
GRADES 5 AND 11



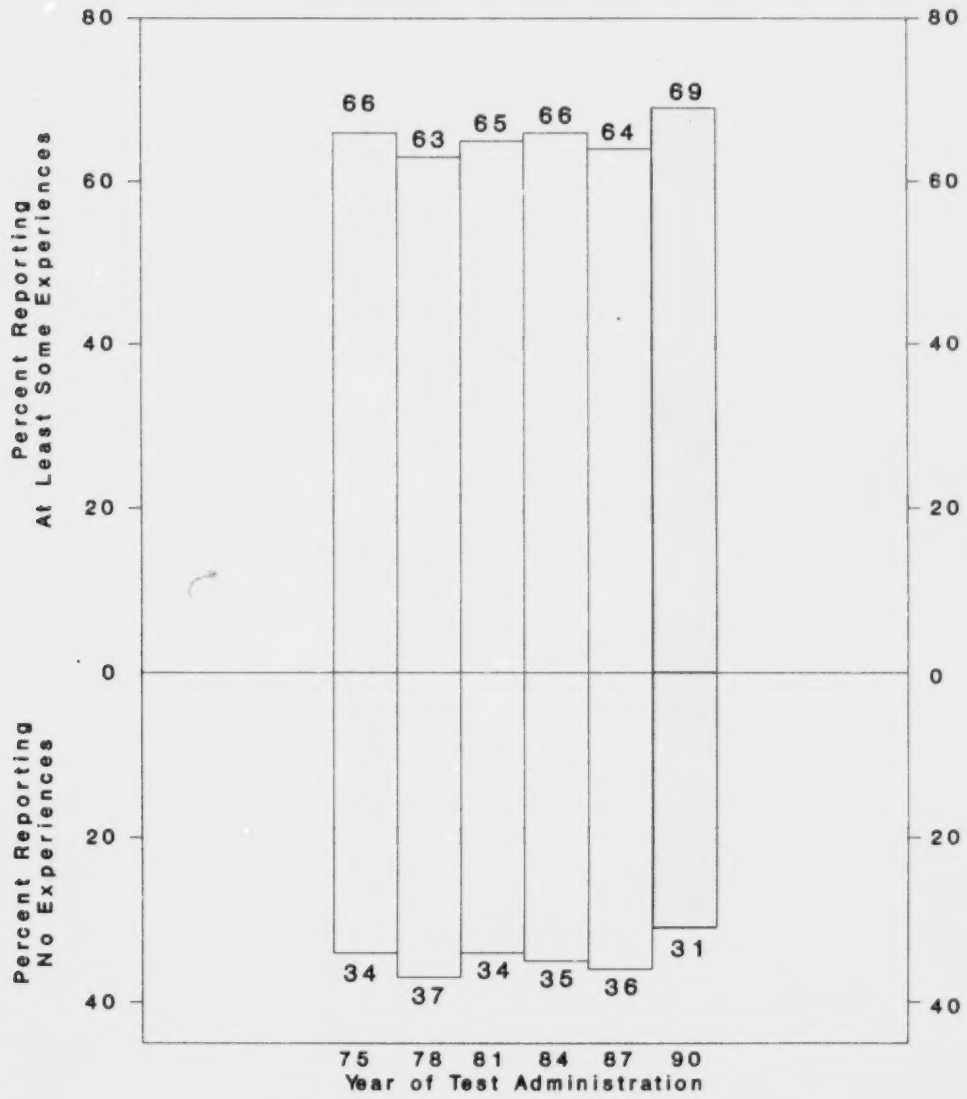
The Academic Self-Concept scale was targeted at Utah's Emotional Maturity Goal area, specifically focusing on the educational objectives of enhancing positive self-image and developing an accurate insight into one's own capabilities and limitations. The 9-item scale measured the students' confidence in their academic abilities by asking them to respond to items describing their ability to learn things quickly, plan, persevere, work independently, and remember. Students with high scores on this scale reported an outstanding or very good ability to stick with schoolwork until it was finished, plan and carry out schoolwork, do what their teachers wanted them to do, pay attention to school tasks, and think clearly under academic pressure.

EXHIBIT 5
RESULTS FROM THE PEER RELATIONS SCALE, GRADES 5 AND 11



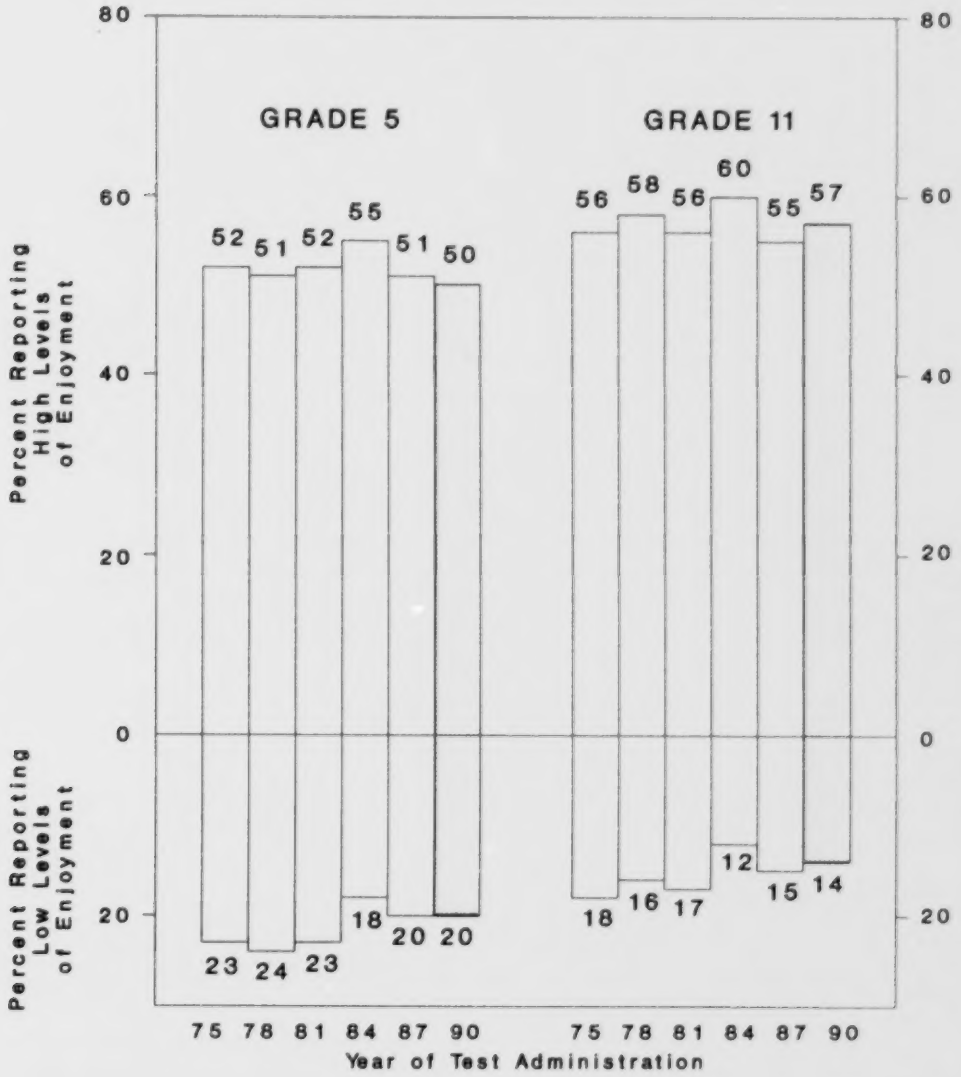
The Peer Relations scale was used to assess outcomes from the Social Maturity Goal area. The 15-item scale measured the students' level of interpersonal skills, including cooperative skills, ability to help others solve problems and accomplish tasks, and ability to take responsibility. Students with high scores were more likely to report that they were outstanding or very good at getting others to understand their feelings, making friends with new students, sharing ideas and feelings with close friends, working with other students as part of a team effort, understanding how other students feel about things, getting others to see the humor in things, helping their friends get along with each other, and making their friends enjoy visits to their homes.

EXHIBIT 6
RESULTS FROM THE CAREER DEVELOPMENT EXPERIENCES SCALE, GRADE 11



The Career Development Experiences scale was used at the 11th grade level as an additional measure of productive maturity, focusing on career development activities and experiences provided by the school rather than initiated by the individual student. Students with high scores on this 10-item scale had participated in numerous school activities which examined and evaluated career possibilities during the school year; this included comparing jobs on the basis of training requirements and other considerations, studying how different jobs might influence one's life, preparing a summary of job qualifications, and studying how hobbies and spare time interests could be helpful in getting a job. The scale provides an indication of how much emphasis is given to career development as part of the school curriculum.

EXHIBIT 7
RESULTS FROM THE ENJOYMENT OF SCHOOL SCALE, GRADES 5 AND 11



Students' attitude toward school was assessed using the Enjoyment of School scale. Students with high scores on this 10-item scale reported that they almost always did a lot of things in school that they enjoyed, often got excited about what was happening in class, often studied something they enjoyed learning about, would not want to transfer to a different school if given the chance, and felt that time passed quickly while they were in school.

in Exhibit 6, the 1990 assessment resulted in a significant increase. Still, almost a third of all eleventh grade students reported little exposure to career development experiences. Thus, these results may still represent a source of concern to Utah's educators.

Exhibit 7 presents the results from the Enjoyment of School scale at both Grades 5 and 11. A slight decline occurred at the fifth grade level and a slight increase occurred at Grade ll. Neither change was significant statistically. The percentage of fifth grade students who endorsed positive responses on the Enjoyment of School scale declined beyond the low score obtained in 1978. The 1990 results show that at Grade 5, 50% of the students reported relatively high levels of school enjoyment while 20% reported low levels of school enjoyment (and the balance of students chose intermediate or neutral responses). At Grade 11, there was a clear decline in the percent of students endorsing the two most favorable responses in 1987 and a slight rebound in 1990. Two of the educational process measures -- Reinforcement of Self-Concept and Development of Career Talents -- assess teaching strategies that are effective in encouraging enjoyment of school. It is possible that the current emphasis on educational reform may have resulted in students being less satisfied with their educational activities. In any case, the teaching strategies assessed by the process measures offer opportunities to improve enjoyment of school and other desirable outcomes in the future.

OVERALL PATTERN OF CHANGE FROM 1987

The 1990 Statewide Educational Assessment results highlighted areas which were very strong and areas which could benefit from increased emphasis in the public schools. A comparison of Utah's 1987 and 1990 Statewide Educational Assessments showed somewhat different profiles of changes for the fifth and eleventh grade students.

Exhibits 8 and 9 illustrate the profiles of results for the fifth and eleventh grades, respectively, showing the magnitude and direction of changes in scores from 1987 to 1990. In these exhibits, the 1990 results that are similar to those obtained in 1987 are described as "stable", while a statistically significant change from 1987 to 1990 is described as either an "increase" or a "decrease", as appropriate. For example, Exhibit 8 shows that the fifth grade score for Reading was stable compared to what could be expected by chance, while Language decreased significantly.

EXHIBIT 8

PROFILE OF STATISTICALLY SIGNIFICANT CHANGES IN SCORES, 1987-1990, GRADE 5

SCORE AREA	CHANGE SINCE 1987*	
BASIC SKILLS ACHIEVEMENT		
CTBS Reading	stable	
CTBS Language Expression	decrease	
CTBS Mathematics Total		increase
ATTITUDES AND OTHER CHARACTERISTICS		
Academic Self-Concept	stable	
Peer Relations		increase
Independent Development		increase
Enjoyment of School	stable	
EDUCATIONAL PROCESSES		
Reinforcement of Self-Concept		increase
Development of Career Talents	stable	
Expectations		increase
Academic Learning Time	decrease	
Feedback	stable	

* Only statistically significant changes ($p < .05$) have been noted.

EXHIBIT 9

PROFILE OF STATISTICALLY SIGNIFICANT CHANGES IN SCORES, 1987-1990, GRADE 11

SCORE AREA	CHANGE SINCE 1987*	
BASIC SKILLS ACHIEVEMENT		
CTBS Reading Total	stable	
CTBS Language Expression	stable	
CTBS Mathematics Total	stable	
Mathematics Class Experience		increase
ATTITUDES AND OTHER CHARACTERISTICS		
Academic Self-Concept	stable	
Peer Relations	stable	
Extracurricular Activities	stable	
Independent Development		increase
Career Development Experiences		increase
Career Awareness and Exploration		increase
Enjoyment of School	stable	
EDUCATIONAL PROCESSES		
Academic Learning Time	stable	
Feedback	stable	

* Only statistically significant changes ($p < .05$) have been noted.

PROFILE OF CHANGE AT GRADE 5

At the fifth grade level, as depicted in Exhibit 8, there were five significant positive changes. Five scores were similar to what they had been in 1987, and two scores were significantly below the results obtained in 1987. The areas of concern, marked by clear decreases, were Language Expression and Academic Learning Time, an educational process measure assessing the effective use of time in the classroom.

PROFILE OF CHANGE AT GRADE 11

At the eleventh grade level, as depicted in Exhibit 9, the results were similar to Grade 5. Of the 13 measures used in both 1984 and 1990, four increased by significant amounts and no scores decreased. The strongest gains were on Mathematics Class Experience, Independent Development, Career Development Experiences, and Career Awareness and Exploration.

SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS

KEY FINDINGS

Reading

At both the fifth and eleventh grades, the reading achievement of Utah students remained essentially stable between 1987 and 1990. The 1990 Utah results exceeded the 1988 national norms slightly at the fifth grade (54th percentile) and more markedly at the eleventh grade (61st percentile).

Language Expression

At both the fifth and eleventh grades, the Language Expression scores for Utah students declined from 1987 to 1990; the change was significant at Grade 5 and only slight

at Grade 11. However, Language Expression skills were still high at the eleventh grade, at the 59th percentile, and barely below the 1988 national average at the fifth grade level, at the 49th percentile.

Mathematics

At both the fifth and eleventh grades, Utah students had higher levels of achievement than the 1988 national norms and a clear pattern of growth since the earliest assessment. Grade 5 performance has increased since 1987 while the performance of eleventh grade students remained stable compared to 1987.

Mathematics Class Experience

More Utah eleventh grade students in 1990 had taken advanced mathematics courses than in 1987. Students who had taken these mathematics courses had substantially higher mathematics achievement than students who had not taken the courses. These results are reflected in the generally higher mathematics results obtained since 1975.

Academic Self-Concept

Student scores for Academic Self-Concept increased slightly and to all-time highs. Students with high scores on Academic Self-Concept tended to have high scores on all the other educational outcome measures. For example, students with high Academic Self-Concept scores also tended to be above average on the tests of basic academic skills and to have higher scores for Enjoyment of School.

Peer Relations

Both fifth grade and eleventh grade scores on Peer Relations increased since 1987: at the eleventh grade, scores reached a new all-time high, and the scores for fifth grade students increased significantly. Students with high scores on Peer Relations tended to have high scores on most of the other outcome measures, excluding basic skills achievement. For example, students with higher Peer Relations scores tended to have higher Academic Self-Concept scores. Grade 11 girls had higher Peer Relations scores than boys.

Extracurricular Activities

Assessed only at the eleventh grade level, this scale was stable compared to 1987; it was still well below the 1975 level. Students with higher levels of extracurricular participation tended to have somewhat higher scores for Peer Relations and Independent Development. Girls were more likely than were boys to participate in the types of non-athletic activities measured by this scale.

Music Achievement

Given the five items used to assess music achievement, Grade 5 students improved their performance compared to 1987 on four out of the five; at the eleventh grade, student performance more nearly approximated the results obtained in 1987.

Art Achievement

Based on the five items included in the assessment battery, art achievement among Utah students appears to have improved slightly at both grade levels.

Independent Development

The good news is that Independent Development scores increased significantly at both the fifth and eleventh grade; the bad news is that a large portion (43-44%) of students in Grades 5 and 11 reported low levels of independent learning activities. Furthermore, scores on this scale have been essentially level since 1975, in spite of the fact that the educational process measures offer opportunities for improving this important student outcome. Students with high scores on Independent Development tended to have high scores on most of the other outcome measures.

Career Development Experiences

This scale, used only at the eleventh grade, measured the career development activities and experiences provided by the school. Students' scores increased significantly since 1987, reaching a new all-time high. And yet progress in this area has also been slow since 1975. Continued attention to this area is certainly warranted. The fact that more than one-third

of the eleventh grade students reported no exposure to career development experiences is cause for concern.

Career Awareness and Exploration

This scale, also used only at the eleventh grade, measured whether students had given some thought and initiated some activities concerned with making a career choice. Levels of career exploration increased significantly in 1990, now approximating the level obtained in 1981. Results from specific career planning items strongly suggest that the educational system may wish to continue to seek ways to stimulate greater student awareness and exploration of possible careers.

Enjoyment of School

The results indicate that Enjoyment of School scores were essentially the same in 1990 as they were in 1987 for both Grades 5 and 11. However, at the fifth grade, Enjoyment of School did reach an all-time low. Utah educators should not ignore the needs of students who report being unhappy with school.

Reinforcement of Self-Concept

At the fifth grade, scores on this scale increased, equalling the results obtained in 1981. But only 39% of all students reported high amounts of positive reinforcement from their teachers. Historical comparisons were not available at the eleventh grade; although the results were somewhat less positive than those obtained at the fifth grade. In view of the fact that Reinforcement of Self-Concept was associated with students' Mathematics Computation, Academic Self-Concept, Peer Relations, Independent Development, and Enjoyment of School, increased attention to this area appears appropriate.

Development of Career Talents

Development of Career Talents has not changed since 1981 at the fifth grade level -- less than a quarter of the students reported high use of the teaching strategies assessed by the Development of Career Talents scale. Only a slightly higher percentage was obtained at the eleventh grade. Since these teaching techniques had a positive impact on Mathematics Computation, Independent Development, Enjoyment of School, Peer Relations, and Academic Self-Concept, additional attention is also warranted here.

Expectations

Although expectations scores increased at the fifth grade over 1987, the results were still below those obtained in 1978; 1990 results for the eleventh grade were similar. Scores on this scale were positively related to Peer Relations and Independent Development. Although the empirical correlations with academic achievement scores were generally not significant, teachers are still encouraged to set high expectations for student effort in view of the importance of Expectations and the limitations involved in this kind of assessment.

Academic Learning Time

At the fifth grade, scores for Academic Learning Time have been essentially the same since 1984. They were clearly not as high as they could be, indicating room for improvement. Academic Learning Time assesses important teaching strategies; the measure was related to all the measures of basic academic skills, as well as Enjoyment of School, Academic Self-Concept, Independent Development, and Peer Relations.

Feedback

Feedback scores have not changed significantly at either grade level since the scale was first introduced in 1984. Classroom feedback was related to Enjoyment of School, Peer Relations, Independent Development, Academic Self-Concept, and 4 out of 7 of the achievement measures. In view of the importance of this measure, increased use of these teaching strategies appears warranted.

Socioeconomic Status (SES)

SES was the demographic measure most strongly related to the educational outcome measures. SES was also related to some of the classroom educational processes measured. As in previous assessments, students from lower SES backgrounds typically had significantly lower scores on all academic achievement tests and most other outcome measures. These findings confirm a continuing need for special programs for the disadvantaged.

Race

Minority students tended to have slightly lower basic achievement scores than whites. This difference is partially explained by differences in SES.

Sex

Girls in the fifth grade tended to have slightly higher scores for Reading Comprehension, Language Expression, and Mathematics Computation. Girls in the eleventh grade tended to have slightly higher Language Expression scores, and they also moved closer to the scores of boys on Mathematics Concepts and Applications, although they still continued to take fewer mathematics courses. Eleventh grade girls also tended to have higher scores for Peer Relations and Extracurricular Activities.

School Size and Locale

Students in small high schools and in rural high schools had slightly lower Vocabulary scores. Otherwise, neither school size nor locale were significantly related to educational outcome measures.

RECOMMENDATIONS

(1) Continue to encourage high school students, especially those bound for college, to take higher-level courses in mathematics, science, etc. Students who take such courses tend to learn more and have higher levels of academic achievement. Although Utah students currently perform above the national average on tests of basic skills, they do not perform as well on the higher level ACT mathematics score.

(2) Explore options for improving Language Expression. Performance declined at both grade levels. Providing feedback about language usage in all curriculum areas is a way of finding additional time in already crowded schedules.

(3) Foster the use of teaching strategies known to maintain high levels of student performance. In particular, continue to strongly encourage the use of clearly defined, relevant instructional objectives.

(4) Include in the curriculum specific strategies aimed at raising the Academic Self-Concept of all students by developing success experiences and reducing failures (without lowering standards). Develop learning experiences that provide positive recognition of individual student performances.

(5) Recognize different educational goals and needs, especially the academic background required for different careers. Curriculum offerings, counseling, and the Student Education Plan process should be coordinated with career plans for individual students to provide the appropriate educational background for student development.

(6) Stimulate greater student awareness and exploration of possible careers. Place more emphasis on developmental experiences, planning,and decision making with respect to future career choices. Expand programs for students to get actual work experience, either as part of the curriculum or through outside work.

(7) Actively seek to involve business and industry in public education in mutually advantageous ways. Integrating the resources of business and industry into the educational system should substantially enhance career education efforts.

(8) Explore a variety of strategies to improve students' enjoyment of school. Scores on Enjoyment of School reached all-time lows for fifth grade students. Strategies which make school more enjoyable for students include reinforcement of self-concept, development of career talents, more productive academic learning time, and the use of appropriate feedback.

(9) Expand teachers' use of reinforcement of self-concept. Teachers should praise students for good work and should develop learning experiences which provide positive recognition of individual student performances.

(10) Focus teacher attention on academic learning time to increase the amount of class time spent productively learning the lesson with a high rate of student success. According to students, class time for many teachers was not used efficiently.

(11) Make greater use of teaching techniques aimed at the development of career talents such as creativity, decision-making, and planning. These techniques enhance students' independent development, self-concept, enjoyment of school, and make better use of their full potential for later-life accomplishment. Use of a reward system for out-of-class learning activities is another strategy for stimulating student growth in areas related to adult accomplishment.

(12) Set high expectations for student effort and achievement, while remaining sensitive to students' ability level and instructional needs. Both high-achieving and low-achieving students should be expected to make (and be rewarded for making) their best efforts, although the lessons taught and work assigned may be quite different. Teachers might try having students discuss their own goals and standards for achievement.

(13) Examine all opportunities to aid disadvantaged students in developing their capabilities and, thus, provide for real equality of educational opportunity. Continued efforts are necessary to overcome the problems of the disadvantaged students; the results from low SES schools constitute a continuing and difficult challenge for Utah educators.

(14) Reinforce deliberate efforts to make greater use of specific teaching strategies (academic learning time, development of career talents, reinforcement of self-concept, etc.) in classrooms in lower SES areas.

(15) Attend to SES and other demographic differences when attempting to compare the overall performance of different schools or school districts. The teaching effectiveness in a school in a low-income neighborhood may be as good or better than in a school in an upper-income neighborhood, even though average academic achievement test scores might suggest the opposite. These realities make school-by-school comparisons difficult at best. Interpretation of such data must be made very cautiously and in light of a variety of information.

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1975-1990

GENERAL REPORT

Utah Statewide

EDUCATIONAL ASSESSMENT

Jay B. Taggart
State Superintendent
of Public Instruction

Utah State Office
of Education

250 East 500 South
Salt Lake City, Utah
84111

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UTAH STATEWIDE EDUCATIONAL ASSESSMENT

GENERAL REPORT

1975 - 1990

UTAH STATE OFFICE OF EDUCATION

Jay B. Taggart
State Superintendent of Public Instruction

Bruce Griffin
Associate Superintendent, Strategic Instructional Services

David E. Nelson
Coordinator, Evaluation and Assessment

John D. Ross
Specialist, Evaluation and Assessment

THE INSTITUTE FOR BEHAVIORAL RESEARCH IN CREATIVITY (IBRIC)

Robert L. Ellison, Research Director

By

David G. Fox, David E. Nelson, Robert L. Ellison,
Marita L. Fairfield, and John D. Ross

December, 1990

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FOREWORD

The Statewide Educational Assessment Program began in 1975 and has continued through the April 1990 assessment. A 1990 Utah law created the new State Testing Program which began this fall and replaces the Statewide Assessment. The new program will test all students at grades 5, ,8, and 11.

This report documents the procedures and results from the sixth Utah Statewide Educational Assessment. It is hoped that this report, the *Executive Summary Report*, and technical documentation produced from the study will provide appropriate information to both educators and the general public about the performance of Utah's public school system.

The State Board of Education and its staff are committed to providing a quality education for each student in Utah's public school system. Related to this commitment is the need for monitoring of performance of the public schools in various ways. It is our conviction that assessment of student performance is central to making progressive changes in the educational system.

The 1990 Statewide Assessment effort involved the testing of students from random samples of both elementary and high schools. Over 5,000 fifth grade students in 65 elementary schools and over 2,500 eleventh grade students in 32 high schools took part in the study.

We believe that this *General Report* and the other reports which were produced from the study provide a comprehensive examination of student performance across the state of Utah in respect to both important traditional academic areas and other important goals of education in Utah.

The entire 1990 Utah Statewide Educational Assessment Program was developed and refined under the direction of the State Office of Education with assistance from the Institute for Behavioral Research in Creativity.

Jay B. Taggart
State Superintendent of Public Instruction

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I. INTRODUCTION

CHAPTER I

INTRODUCTION

This report presents the results of Utah's sixth comprehensive educational assessment. The Utah Statewide Educational Assessment program has provided an analysis of the strengths and weaknesses of public education in key areas of educational endeavor across the state as a whole every three years since 1975. Many groups within the public educational system have helped shape the program, including the Utah Legislature, the State Board of Education, the State Superintendent and his staff, local district superintendents, school administrators, and teachers.

A most important decision in any evaluation effort is the determination of what will be assessed. Utah Statewide Educational Assessments have measured student outcomes from five goal areas--Intellectual Maturity, Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity--which were drawn from the *Goals and General Objectives of Education in Utah* (Utah State Board of Education, 1973). Goals such as these provide a broad definition of educational attainment, and underlie the formulation of more specific and instructionally-oriented objectives in the schools of the state, objectives exemplified by Utah's K-12 core curriculum.

In addition to measuring student outcomes, Statewide Educational Assessment has obtained information on a variety of factors which influence, or are associated with, student outcomes. Such information has consisted of student and school demographic characteristics, including geographical designations, socioeconomic status, and a variety of other specific descriptors. Another important aspect of the six assessments has been the inclusion of information about educational processes--factors which describe certain key activities within the classroom, such as expectations for student achievement, academic learning time, reinforcement of self-concept, and development of career talents.

Thus, three different types of information have been collected: student outcomes, school classifications and student demographic characteristics, and perceptions of educational processes. The purposes behind the collection of information in these three general categories were to provide: 1) an accurate picture of achievement by students in Utah's public schools; 2) an indication of how certain demographic factors influence the way students achieve; and 3) some insight into instructional approaches and techniques which result in high student achievement. While no one study could accomplish any of these three purposes exhaustively, the present study provides some very sound indicators in each of these three areas.

NATIONAL TRENDS AND UTAH'S RESPONSE

Extensive research documented that during the decade and a half between the early 1960's and middle 1970's, scores on most achievement tests in the United States showed a slight but significant decline at the upper elementary grades and more marked declines at higher grade levels (Harnischfeger & Wiley, 1976). These declines drew a great deal of attention from educators and from the public who were interested in the implications suggested by the declining test scores regarding the quality of education in this country. Research experts agreed that there was no simple explanation, but rather a complex and changing pattern of factors accounted for the decline of test scores over that period of time. Nevertheless, educators took a considerable amount of the heat for those declines in achievement test scores.

By the late 1970's and early 1980's, the long declines were reversed and achievement test scores generally started to increase. However, in the early 1980's a new round of criticism of U.S. educators began with the publication of *A Nation At Risk* (National Commission on Excellence in Education, 1983). Numerous other national task forces and commissions substantiated many difficulties in education in the years following (Mullis, Owen, & Phillips, 1990). Deficiencies were found in course offerings, teaching efforts, discipline, etc.

Much of the recent national criticism of the educational system centers around the argument that we are educating students for an obsolete economic picture. The critics say most students are given minimal skills best suited for rapidly disappearing assembly-line work. As we move toward an increasingly global economy, reform efforts need to guide the educational system toward providing the majority, rather than an elite minority, with higher-level critical thinking skills and the ability to function independently and in cooperation with other individuals. Such characteristics will enable graduates to compete more effectively in future job markets (Reich, 1988; Strategic Planning Commission, 1988; National Center on Education and the Economy, 1990).

Minority students appear to bear the greatest negative effect of the current approach to education; this is evident by their higher dropout rate and lower achievement test scores. About 40% of all new workforce entrants are minorities or immigrants, and this statistic will probably increase in the future; this is a critical problem deserving of reform efforts (National Center on Education and the Economy, 1990). Recent data suggest that reform efforts have already resulted in some improvements here. While the disparity in scores between minority and white students is still too great, data from the National Assessment of Educational Progress (NAEP) indicate that scores of Black and Hispanic students have steadily improved over the last twenty years (Mullis, et al., 1990).

In addition, and related to the impact of minority status, educators are challenged to overcome the effect of socioeconomic status (SES) on student achievement. Numerous research studies since the 1960's have documented that family background, early childhood

experiences, peer environment, etc., set in motion a chain of events which the educational system cannot easily overcome. Approximately 10 to 25 percent of the variation in achievement test scores has been attributed to SES effects.

In view of all these difficulties and controversies, a number of reform movements have been initiated nationally as well as in the state of Utah. The Utah State Office of Education has compiled pertinent information on student performance using a variety of indicators since 1967 (Nelson & Ross, 1989). Information in these reports and the results from previous assessments have indicated that some of the national criticisms of education have been relevant in Utah while others have not. To address the trends and criticisms of the educational system happening nationally, the Utah State Board of Education established the Utah Commission on Educational Excellence, which issued a wide-ranging report calling for educational reform initiatives in the three basic areas of retaining and rewarding superior teachers, restructuring of the school curriculum, and using time more effectively in the schools (Utah Commission on Educational Excellence, 1983). Another major Utah effort was the work of the Governor's Utah Education Reform Steering Committee. In its 1983 report, *Education in Utah: A Call To Action*, the Governor's Committee addressed many of the same issues which were identified in the work of the State Board of Education's Commission.

More recently, Utah has examined potential reform initiatives with the publication of *A Shift in Focus* (Strategic Planning Commission, 1988). This report addresses the need to alter the way in which we educate the majority of students to reflect the changing economy and future workplace requirements predicted by the national reports mentioned earlier. The bottom-line message of this publication is that educators need to move toward the creation of a student-focused system in which students have additional freedom and responsibility to prepare themselves for their roles in the future workplace.

Utah policy makers and educators have set in place a number of specific initiatives in response to the kinds of issues being discussed here. Significant actions have been taken by the State Board of Education, the Legislature, local school districts, schools, and individual teachers. Included in these reform initiatives at the state level is what could be the nation's most far-ranging system of career ladders for enhancement of the teaching profession, programs of studies featuring an objectives-based K-12 core curriculum, and more rigorous standards for graduation. Reform has also stressed additional focus on student educational planning, new guidelines for student activities, a new master plan for vocational education, and a statewide effort for improving the role and performance of the school principal. In addition, Utah has continued an educational productivity program which has been in place since 1981.

Another important recent event in Utah's educational system that has a bearing on interpreting the 1990 Statewide Assessment results presented in subsequent chapters of this report is the increase in the number of Utah students taking more difficult courses in high school. In contrasting the course-taking patterns of seniors in 1988 with the patterns of

seniors in 1984, five subject areas demonstrated rather marked increases: foreign language, history and social studies, mathematics, science, and art. English, music, and physical education showed rather stable enrollments over this same period of time. The most profound increases in enrollment were for foreign language, mathematics, and science. In each of these subject areas, much higher percentages of 1988 seniors had taken at least two years of course work than was true for the graduating class of 1984 (Nelson & Ross, 1989).

So, given the calls for reforms and the actions taken, how do our nation's students and Utah's students in particular measure up now? That is the subject of the 1990 Statewide Assessment, but other data are available to shed some light. The most recent results on college bound high school students revealed lower scores for both Utah and national students on the English score of the ACT College Entrance Exam compared to a year earlier. The performance of the 15,045 Utah students from the graduating class of 1990 had similar results on the mathematics score and improved slightly on the composite score relative to their 1989 counterparts. National scores declined slightly on mathematics, while remaining stable on the composite. Utah students scored lower than national students on mathematics but higher on the English and composite scores (Nelson, 1990).

The 1990 Utah and national ACT results (Nelson, 1990) also showed that those students taking a rigorous college preparatory curriculum (including at least four years of English, three years of mathematics, three years of social studies, and three years of science in grades nine through twelve) scored at much higher levels than students not taking such a rigorous program. For example, Utah students from the graduating class of 1990 who did take the rigorous college-preparatory curriculum had an average composite score on the ACT of 22.6. In contrast, those Utah students who did not take the rigorous course of studies had an average ACT composite score of 20.3. The impact was somewhat more pronounced on the mathematics test; there the scores were 21.5 and 18.9, respectively. These data combined with the improved course-taking behavior noted above suggests that Utah's efforts to improve the curriculum standards and graduation requirements have been and will be paying off in the form of improved achievement test scores.

Overall, it appears that Utah has generally kept pace with or exceeded the national and local calls for reform to improve our students' standing on national and international indices of academic achievement. More than that, however, throughout the fifteen years of the Statewide Educational Assessment program, Utah educators have been extremely progressive in their attention to noncognitive measures which are critical to the most recent objectives for educational and economic reform. With a continuation of this emphasis on the development of student potential in *all* areas of development, Utah's students will be more competitive and productive individuals in the future global economy. While the gains made to date are significant, Utah educators must not rest on their laurels; they must continue to be progressive in their orientation toward educational reform.

PROCEDURES

The Utah Statewide Educational Assessment program was designed to measure a wide range of student outcomes and attitudes which the educational system works to foster. Outcome assessment was accompanied by the measurement of key factors descriptive of conditions and educational procedures which influence or are associated with student outcomes. These included educational process measures such as teacher emphasis on reinforcement of self-concept and development of career talents; other variables such as school size; and student characteristics such as race, socioeconomic status, and sex. The Utah approach to assessment has allowed for a more detailed examination than is usual within a state testing program, not only of kinds of performances but also of important demographic and educational process factors which are related to levels of performance.

The 1990 assessment benefitted from the psychometric developmental efforts expended in the five previous assessments (see Ellison, Nelson, Abe, Fox, & Coray, 1975; Ellison, Nelson, Fox, & Abe, 1978; Ellison, Nelson, Guest, & Fox, 1982; Guest, Nelson, Ellison, & Fox, 1985; and Guest, Nelson, Ellison, & Fox, 1988). Decisions to include particular scales were based on perceptions of interest within the educational community, examinations of the content measured by the tests, and considerations of psychometric properties, such as the demonstration of various kinds of reliability and empirical validity. Maintaining measures used in earlier assessments permitted comparisons of current results to those obtained earlier, enabling the analysis of any changes that may have occurred.

A list of the measures used in the 1990 study is presented in Exhibit 1. Considering educational relevance and limitations on testing time, five subtests were selected from the Comprehensive Tests of Basic Skills, Fourth Edition, published by CTB/McGraw-Hill. This test was nationally normed in 1988. The scale for Mathematics Class Experience was developed specially for the 1981 assessment and was retained because of its utility in explaining differences in mathematics achievement. Most of the measures of emotional, social, aesthetic, and productive maturity, as well as attitude toward school, were developed specifically for the 1975 Utah Statewide Educational Assessment. Developmental information concerning these scales is presented in the 1975 reports; the only exception is Art Achievement, for which the items were drawn from a scale specially constructed for the 1978 assessment. Three of the educational process measures (Reinforcement of Self-Concept, Development of Career Talents, and Expectations), and the demographics and school classifications, were developed for the 1975 Assessment. Finally, scales for Academic Learning Time and Feedback were developed as educational process measures specially for the 1984 Assessment.

EXHIBIT 1

MEASURES USED IN THE 1990 ASSESSMENT

INTELLECTUAL MATURITY

From the Comprehensive Tests of Basic Skills, Fourth Edition:

- Reading Vocabulary
- Reading Comprehension
- Language Expression
- Mathematics Computation
- Mathematics Concepts and Applications

Mathematics Class Experience (Grade 11 only)

EMOTIONAL MATURITY

Academic Self-Concept

SOCIAL MATURITY

Peer Relations

Extracurricular Activities (Grade 11 only)

AESTHETIC MATURITY

Art Achievement (5 items only)

Music Achievement (5 items only)

PRODUCTIVE MATURITY

Independent Development

Career Awareness and Exploration (Grade 11 only)

Career Development Experiences (Grade 11 only)

ATTITUDE TOWARD SCHOOL

Enjoyment of School

EDUCATIONAL PROCESSES

Reinforcement of Self-Concept

Development of Career Talents

Expectations

Academic Learning Time

Feedback

DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS

Socioeconomic Status (Financial and Educational)

Sex

Race

School Locale

School Size

DATA COLLECTION AND ANALYSIS

The students who participated in the 1990 Utah Statewide Educational Assessment program were in the fifth and eleventh grades. These grades were chosen because they are close to the end of the elementary and secondary levels and because the students would typically still be in the same school settings a year later. The participating students and schools could then benefit from the feedback given to schools by the project.

The basic sampling approach employed involved the selection of a stratified random sample of schools. Thus, a sample of 65 elementary and 32 high schools was selected which was representative of the elementary and high schools in the state. The sample was evaluated on the basis of a number of variables that were of importance or interest to the project. Included among these variables were Chapter I versus non-Chapter I schools, size, and type of community within which the school was located (urban, suburban, or rural). The samples of schools selected were comparable to the population on these variables. In all, 5032 fifth grade students and 2545 eleventh grade students were tested.

Since schools were sampled randomly, not every district in the state had schools drawn for the sample; the project was not designed to make district by district comparisons. The results of the project *cannot* be used to compare students from one district to another, nor can the results from the students sampled in one district be used to represent all the students within that district. Also, the sampling design and lack of experimental control precludes the use of the Utah Statewide Assessment results for program evaluation, even though the information obtained may be helpful in guiding future program efforts. The results found in the project *can* be used to indicate the general level of effectiveness of the educational system within the State of Utah as a whole.

An outline of the procedure of the study is presented in Exhibit 2. Careful administration procedures were followed to ensure data quality. Attention was paid to the personal privacy of the students to ensure voluntary participation and to prohibit misuse of any of the information collected. Finally, in all data processing activities, careful attention was paid to quality control procedures. The end result provided representative results for students throughout the state.

EXHIBIT 2
OUTLINE OF PROCEDURE

IDENTIFICATION AND CONSTRUCTION OF MEASURES

Decisions based on:
- relevance to the educational community
- content of the tests
- psychometric properties

SELECTION OF THE SAMPLE

Stratified random sampling was done from 5th and 11th grades statewide
Population of schools was stratified on school size, locale (urban, suburban, or rural), and Chapter I vs. non-Chapter I

5th grade: 65 selected schools
all 5th grade students in each selected school

11th grade: 32 selected schools
all 11th grade students in each smaller school
110 randomly selected 11th graders in each larger school

ADMINISTRATION OF THE MEASURES

Testing dates: middle three weeks of April, 1990
Testing time: about five hours, divided into at least two blocks
Test administrators: substitute teachers for 5th grade, school counselors for 11th grade
Test administrator training: two-hour workshops at four regional sites

PERSONAL PRIVACY

All assessment items were examined to prevent discriminatory content
Students were instructed:
"if there are a few questions which, for personal reasons, you do not wish to answer, you may leave them blank."
For confidentiality of responses, students used arbitrary code numbers

DATA PROCESSING AND ANALYSES

Student answer sheets were checked for consistent code numbering
Responses to non-cognitive portions of battery were screened for quality
All scoring keys were held constant from previous assessments
Statistical analyses included computing means, medians, standard deviations, scale intercorrelations, and item alternative response frequencies
Special coding allowed classroom analyses in 5th grade

REPORTING OF RESULTS

Since different groups such as legislators, professional educators, and the public have different needs relating to the information produced from this study, several types of reports have been produced to meet the needs of specific audiences.

Reports Provided to Each School in the Sample

(1) *Student Feedback Reports* described each student's performance on the Reading, Language Expression, and Mathematics achievement tests administered as part of the study.

(2) *School Achievement Test Reports* provided results for Reading, Language Expression, and Mathematics, based on the average scores of all students taking the tests in the school. These averages were compared to national norms.

(3) *School Feedback Reports* presented the school's average results on all the major measures, including Reading, Language Expression, Mathematics, Academic Self-Concept, Peer Relations, Independent Development, Enjoyment of School, measures of educational processes, etc. These averages were presented in comparison to the state's averages, and were adjusted for demographic and school characteristics.

Reports Presenting the Combined Results for the Entire State

(1) The present *General Report*, directed at general educational audiences, features the basic descriptive and research-oriented results of the project.

(2) The *Executive Summary Report* summarizes the most important aspects of the entire study for people such as Board of Education members, legislators, and others with significant interest but limited time.

(3) A concise summary has been prepared to highlight key aspects of the study for use by the media in communicating results to the general public.

(4) Technical documentation presenting in-depth methodology and statistical results is also available.

SUMMARY

The Utah Statewide Educational Assessment program has capitalized on studies done in other states and on the national level that have been concerned with the effectiveness of the educational system in providing a quality education for students. Important implications and recommendations from these other studies have been used in the formulation of this program.

In keeping with the research orientation of the Utah Statewide Educational Assessment program, a number of variables have been investigated that are not typically found in statewide assessment studies, such as educational process measures. The emphasis on measuring the development of students in non-intellectual goal areas such as social maturity or emotional maturity is also not typical of other state assessment programs.

Key Characteristics of the Assessment Program

Utah's Statewide Educational Assessment program provides:

(1) Statewide information on how Utah's students perform in specific basic achievement areas.

(2) Statewide information on the standing of Utah students on other largely non-cognitive goals of education including Emotional Maturity, Social Maturity, Aesthetic Maturity, and Productive Maturity.

(3) An examination of the relationships between important demographic and educational process variables and specific educational outcomes.

(4) Information for the schools sampled for the project which will aid the teachers and administrators in those schools in making educational decisions.

The design of Statewide Educational Assessment *does not*:

(1) Allow for the comparison of individual school districts.

(2) Evaluate individual teachers.

(3) Allow the direct evaluation of special programs.

(4) Measure everything of importance relative to the education system.

(5) Provide information about the causes of educational achievement.

These are beyond the scope and purpose of the Utah Statewide Educational Assessment.

II. BASIC SKILLS ACHIEVEMENT

CHAPTER II

BASIC SKILLS ACHIEVEMENT

As in the previous five Utah assessments, the Comprehensive Tests of Basic Skills (CTBS) was used to measure achievement in the area of intellectual maturity. The selection of CTBS was primarily based on considerations of item content and technical characteristics (such as validity and reliability). Versions of the CTBS battery have been used in each of the Statewide Assessments, facilitating longitudinal comparisons. A newly standardized form of this test, the Fourth Edition, offered an opportunity to examine the performance of Utah's students compared to a recent (1988) national sample. Since the Fourth Edition was just released, the scores of Utah's 1990 students were unlikely to have been affected by student and teacher familiarity with the CTBS battery.

In addition to the CTBS tests, the Mathematics Class Experience scale, developed for the 1981 assessment, was used to measure the number and kinds of mathematics classes taken by eleventh grade students. This measure has been strongly related to mathematics achievement.

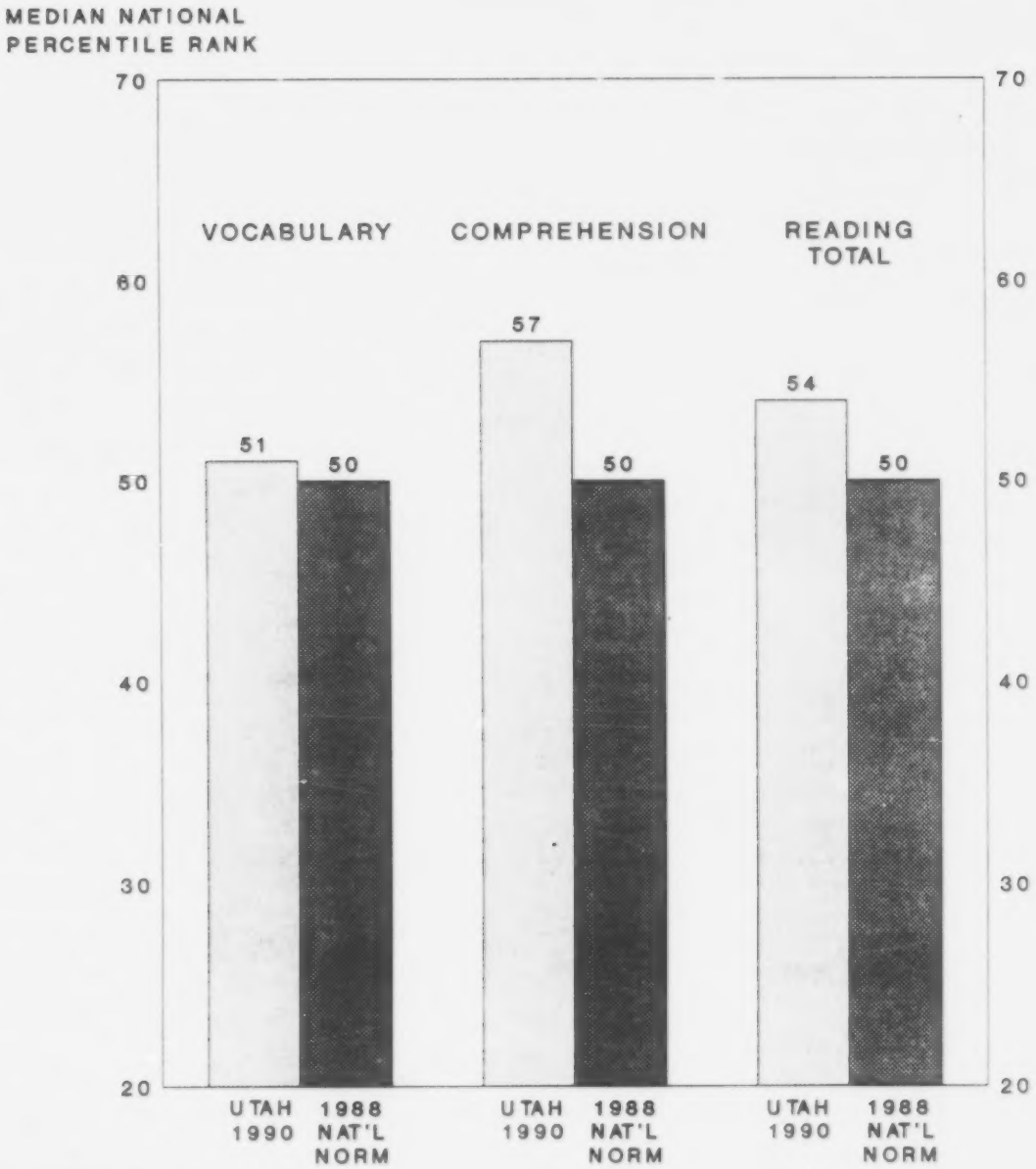
READING

Grade 5

The fifth grade results for the Reading Vocabulary, Reading Comprehension, and Reading Total scores are presented in Exhibit 3. Comparisons are made to the 1988 national norms. Throughout this presentation on basic skills achievement, median national percentile ranks are used as the primary basis for comparing the results from Utah students to those of the national norm sample. For the national norms, of course, the median percentile rank for any score area should be 50, meaning that in the norm group a "typical" or "average" student would score at the 50th percentile -- higher than 50% of the national sample. For the Utah results, a median national percentile rank of 54 (as for Reading Total) indicates that the typical student in Utah scored at the 54th percentile -- higher than 54% of the 1988 national sample. This demonstrates a slightly higher level of achievement in Utah than in the nation as a whole.

The Reading results presented in Exhibit 3 show that the Utah sample slightly surpassed the 1988 national norms on Reading Vocabulary (51st percentile) and more clearly surpassed the norm group on Reading Comprehension (57th percentile) and the Reading Total score (54th percentile). This level of achievement, with Utah above the national average, is also reflected in the supplemental information presented at the bottom of the

EXHIBIT 3
UTAH VS. NATIONAL RESULTS ON CTBS READING, GRADE 5



	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM
Median Grade Equivalent	5.8	5.8	6.3	5.8	6.0	5.8
Mean Raw Score	24.9	24.8	33.3	31.8	58.4	56.6

exhibit. These data show that the typical student in Utah performed at a grade equivalent 6.0 on Reading Total, in contrast to the national norm of 5.8.

Exhibit 4 presents a longitudinal comparison of the fifth grade Reading Total scores for the 1978, 1981, 1984, 1987, and 1990 Utah samples, together with the 1988 national norm data. The results show that fifth grade Utah reading achievement was above the 1988 national norm in 1981 and has risen rather consistently since then. This indicates a pattern of moderate growth in Utah in reading skills at the fifth grade since the Utah Statewide Assessment program was initiated.

Grade 11

Eleventh grade reading results are presented in Exhibit 5, which shows that in 1990 the typical eleventh grade Utah student scored at the 56th percentile on Vocabulary and at the 62nd percentile on Comprehension. When the two subscores were combined and compared with the 1988 national results, the Total Reading result was at the 61st percentile. The supplemental information presented at the bottom of Exhibit 5 also shows the superiority of the Utah sample. To illustrate, the median grade equivalent on all three of the Reading scores was above the highest published grade of 12.9. Overall, Exhibit 5 shows that Utah's eleventh grade students were well above the 1988 national norms on reading achievement.

Exhibit 6 presents a longitudinal comparison of the eleventh grade Reading Total results from the 1978, 1981, 1984, 1987, and 1990 Utah samples together with the 1988 national norm data. This comparison shows that Utah students have consistently outperformed the 1988 national norm group. The scores for the different years are quite stable, typically around the 60th percentile, and are clearly above the national average. The median grade equivalents presented at the bottom of Exhibit 6 show a typical score above grade 12.9 (and off the published scales) for all six Utah Assessments.

LANGUAGE EXPRESSION

Grade 5

Language Expression results, for both the fifth and eleventh grades, are compared for the 1984, 1987, and 1990 Utah samples and the 1988 national norm group in Exhibit 7. Looking first at the fifth grade results, Utah students performed at essentially the same level between 1984 and 1990 in comparison to the 1988 national norms; a typical fifth grader in Utah scored at about the national average. The median grade equivalent scores also show that Utah fifth grade students performed about the same as the 1988 national sample on Language Expression.

EXHIBIT 4
CHANGES ACROSS TIME IN UTAH RESULTS ON CTBS READING TOTAL SCORE, GRADE 5

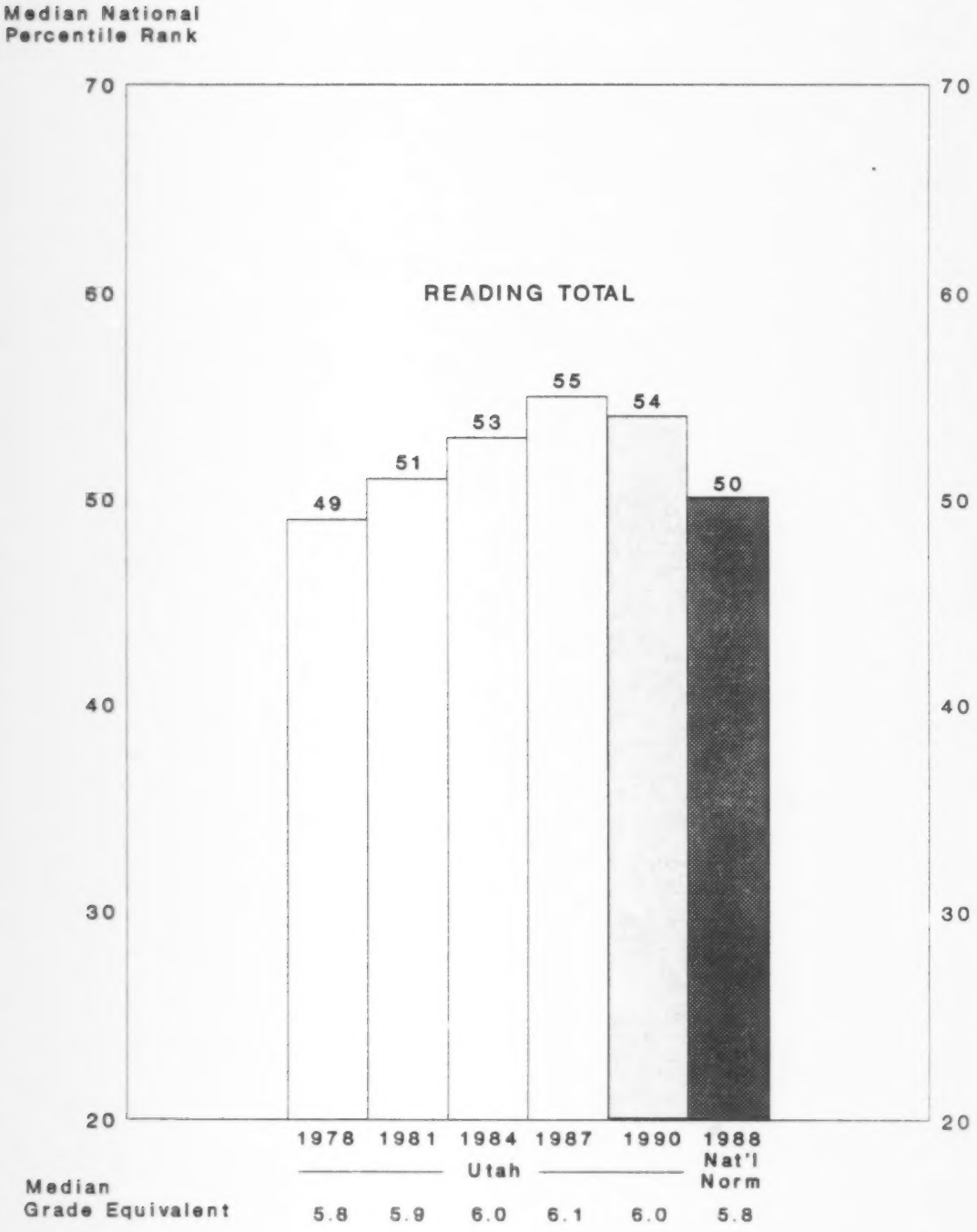
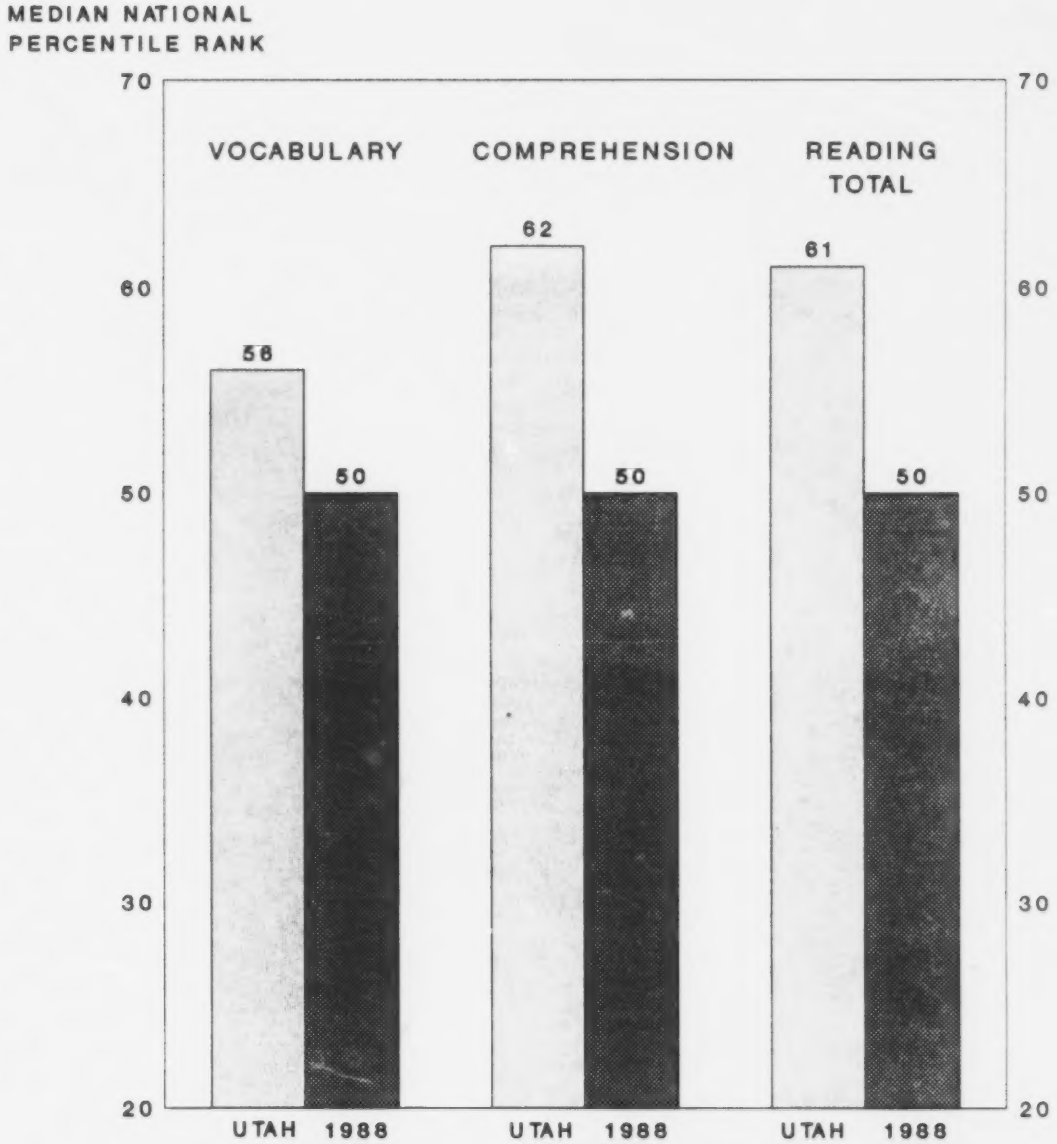


EXHIBIT 5
UTAH VS. NATIONAL RESULTS ON CTBS READING, GRADE 11



	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM
Median Grade Equivalent	12.9+	11.8	12.9+	11.7	12.9+	11.7
Mean Raw Score	26.0	24.8	31.0	28.2	57.0	53.0

EXHIBIT 6
CHANGES ACROSS TIME IN UTAH RESULTS ON CTBS READING TOTAL SCORE, GRADE 11

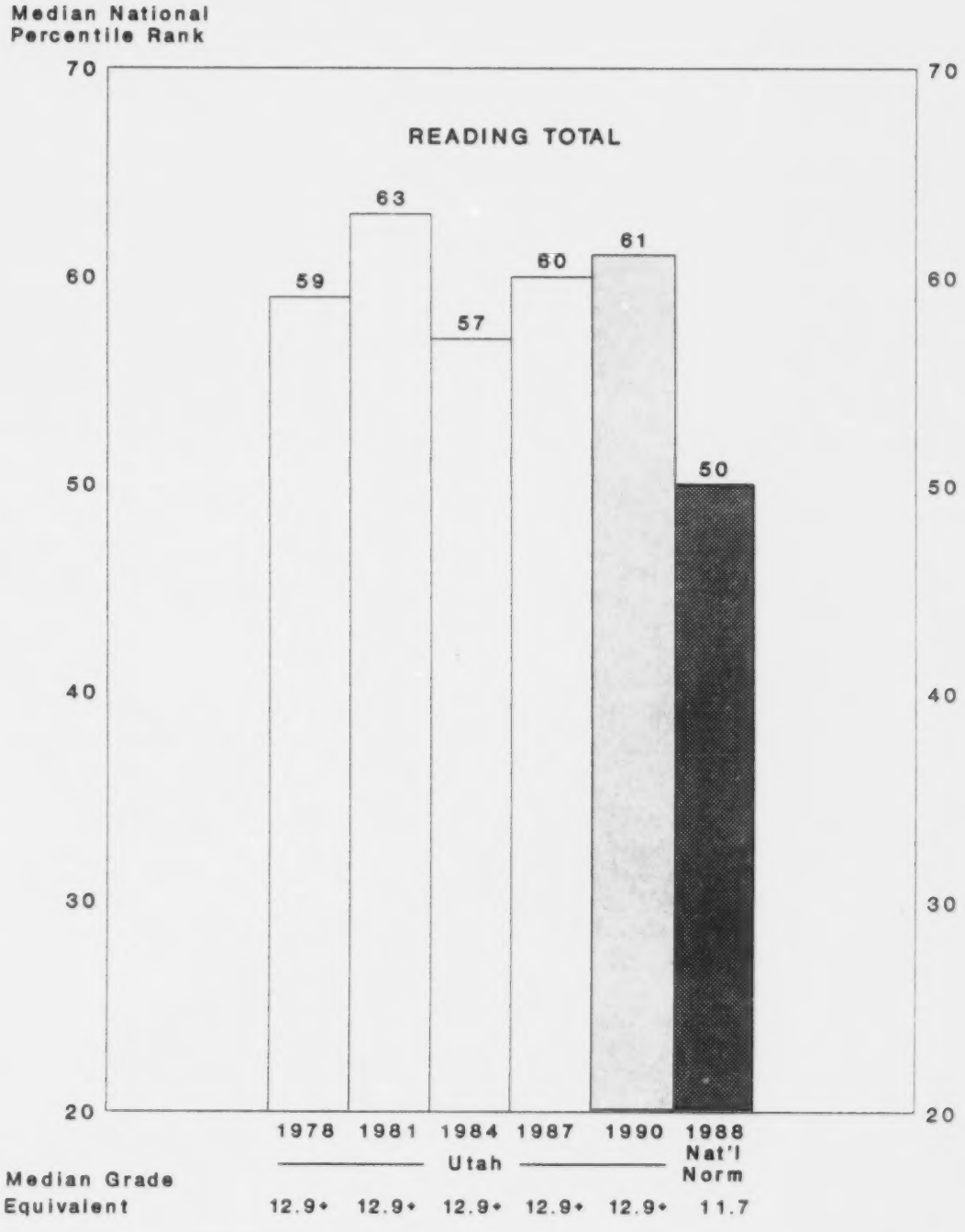
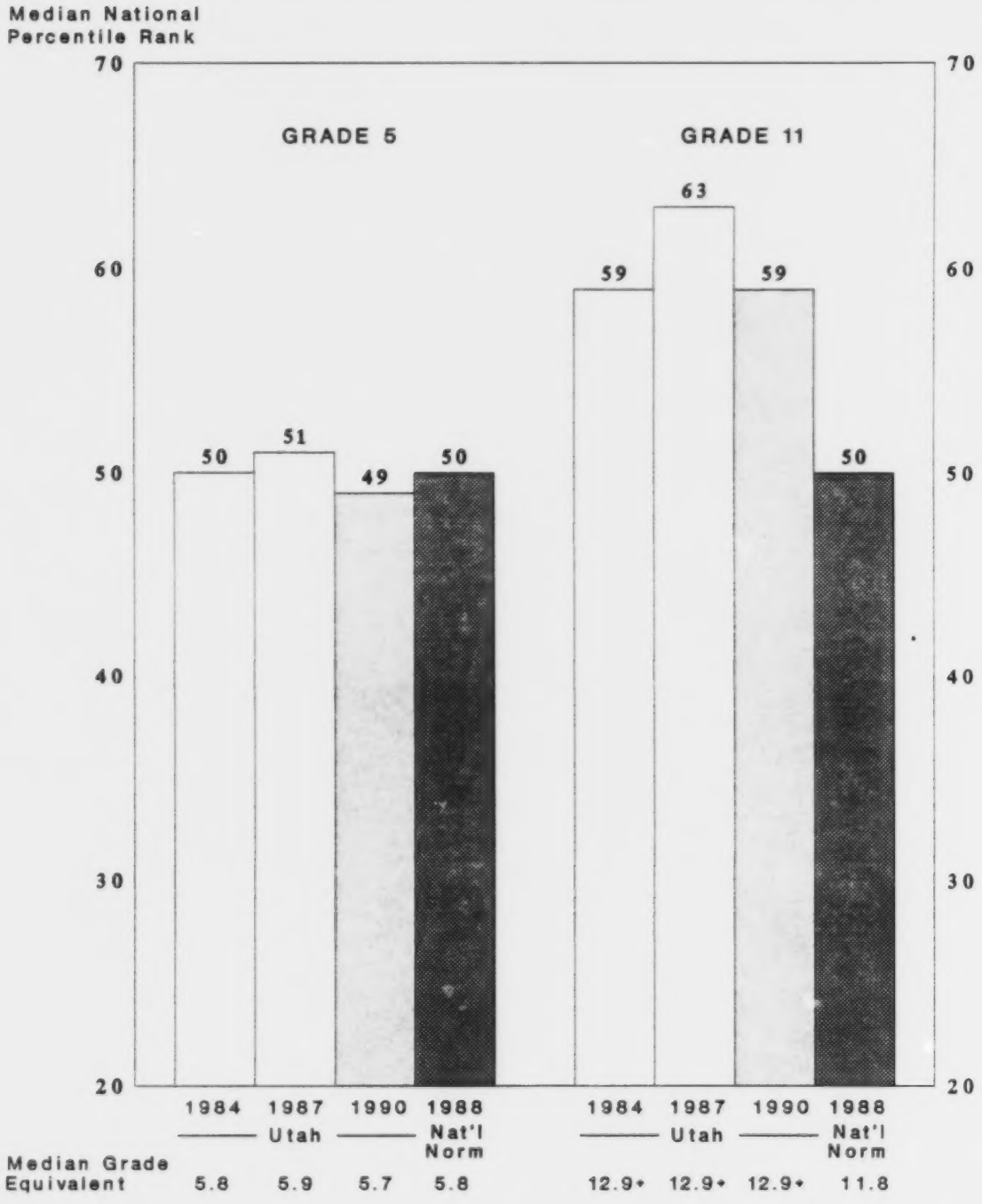


EXHIBIT 7
UTAH VS. NATIONAL RESULTS ON CTBS LANGUAGE EXPRESSION, GRADES 5 AND 11



Grade 11

Language Expression results for grade 11 are also presented in Exhibit 7. Results there show that Utah eleventh graders scored higher in comparison to the 1988 national norms than did the fifth graders. A typical Utah eleventh grade student scored at the 59th percentile, a decline from 1987 to the same level of performance observed in 1984. However, Utah students have been consistently above the 1988 national average since this test was first used in the 1984 Assessment. This same result is also shown by the grade equivalent scores at the bottom of Exhibit 7; Utah students have consistently exceeded 12.9, the top of the published scale.

MATHEMATICS

Grade 5

The fifth grade results for the Mathematics Computation, Mathematics Concepts and Applications, and Mathematics Total scores are provided in Exhibit 8. For all three scores, the Utah students performed about the same, slightly above the 1988 national norm sample. Supplemental information about median grade equivalents is displayed at the bottom of the exhibit. The results show the median grade equivalents were similar to those obtained by the 1988 national norm sample.

Comparisons of the fifth grade Mathematics Total results from the 1975, 1978, 1981, 1984, 1987, and 1990 Utah samples and the 1988 national norm group are presented in Exhibit 9. The results show a pattern of growth in Utah; although Utah students generally improved each year since 1975, only in 1990 did they exceed the 1988 national norm. What has happened is that students nationally *also* improved their performance since 1975. Thus, Utah students had to improve to reach their present level, the 53rd percentile, which was slightly above the 1988 national average. The change in Utah scores between 1987 and 1990 represented a statistically significant increase, a positive achievement for Utah's educators and students. A similar message is presented by the grade equivalent results at the bottom of the exhibit; the performance of Utah students was at a grade equivalent of 5.3 in 1975 compared to the 1988 national norm of 5.8. By 1990, the typical Utah student was performing at a grade equivalent of 5.9, slightly above the national average.

Grade 11

Exhibit 10 shows the eleventh grade Mathematics Computation, Mathematics Concepts and Applications, and Mathematics Total scores in comparison to the 1988 national norms. Utah was somewhat above the national norms for Computation (at the 55th percentile) and higher yet for Concepts and Applications (at the 60th percentile). For the Total score, the standing of Utah students was at the 59th percentile. The median grade equivalents shown

EXHIBIT 8

UTAH VS. NATIONAL RESULTS ON CTBS MATHEMATICS, GRADE 5

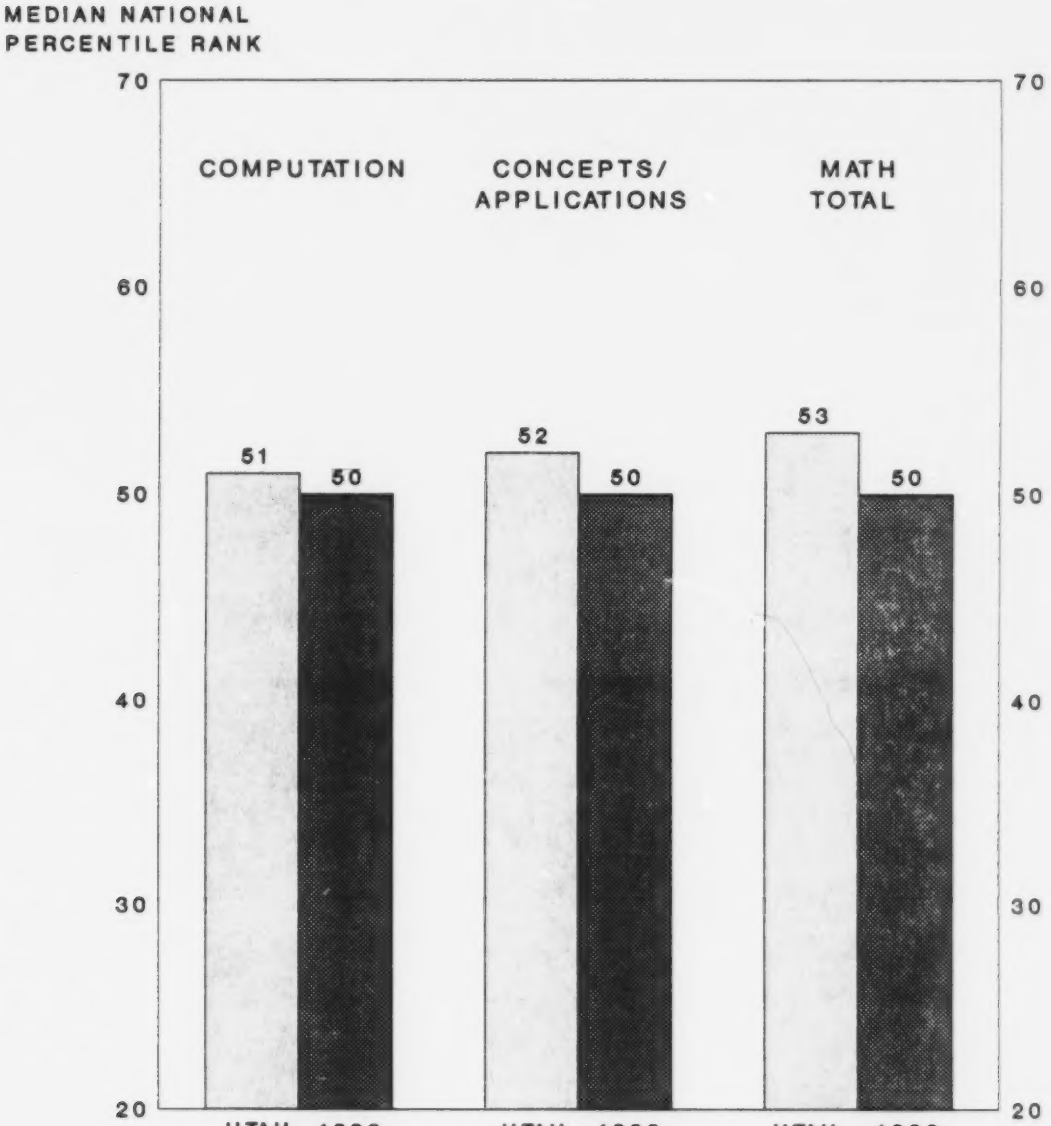


EXHIBIT 9
CHANGES ACROSS TIME IN UTAH RESULTS ON CTBS MATHEMATICS TOTAL SCORE, GRADE 5

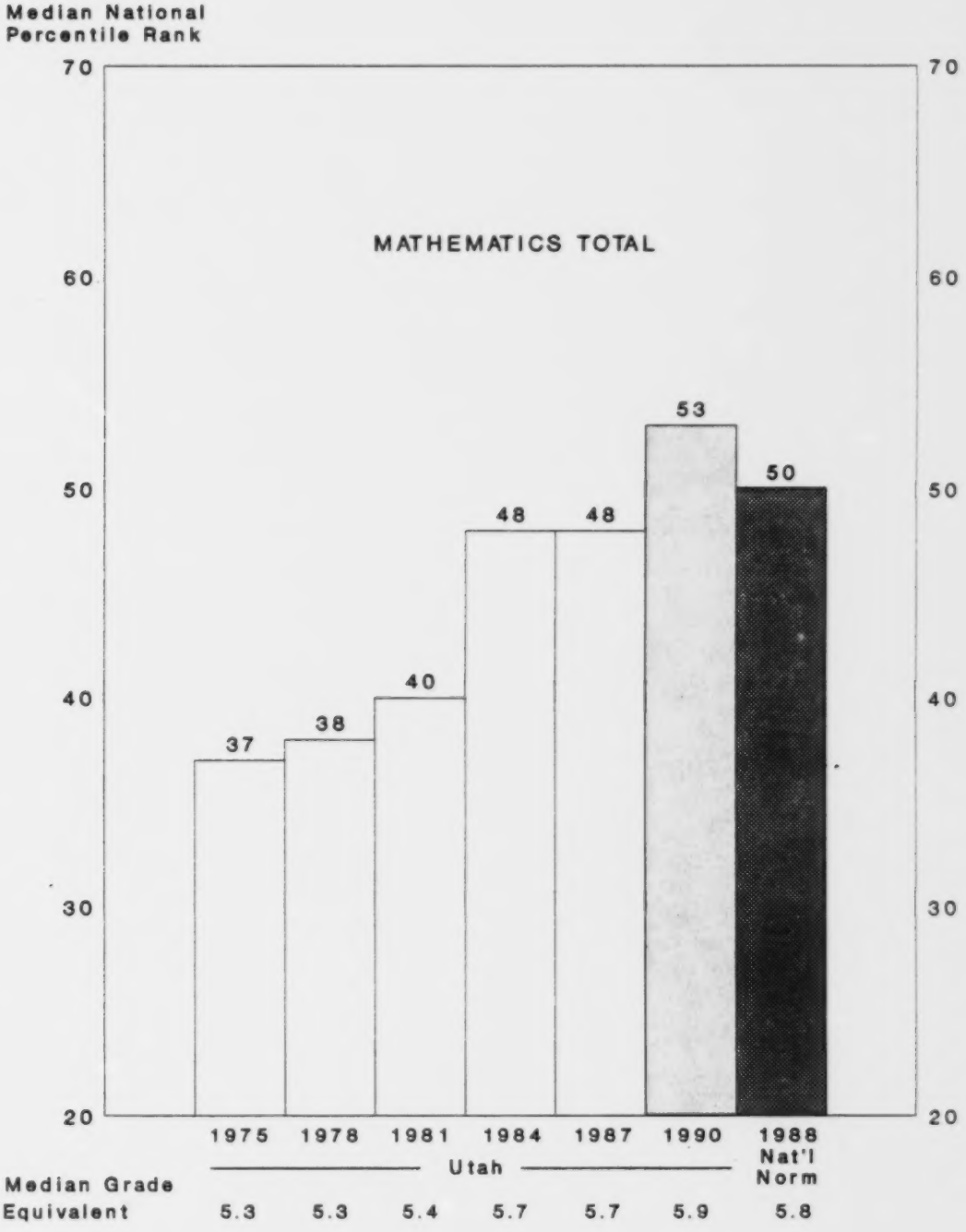
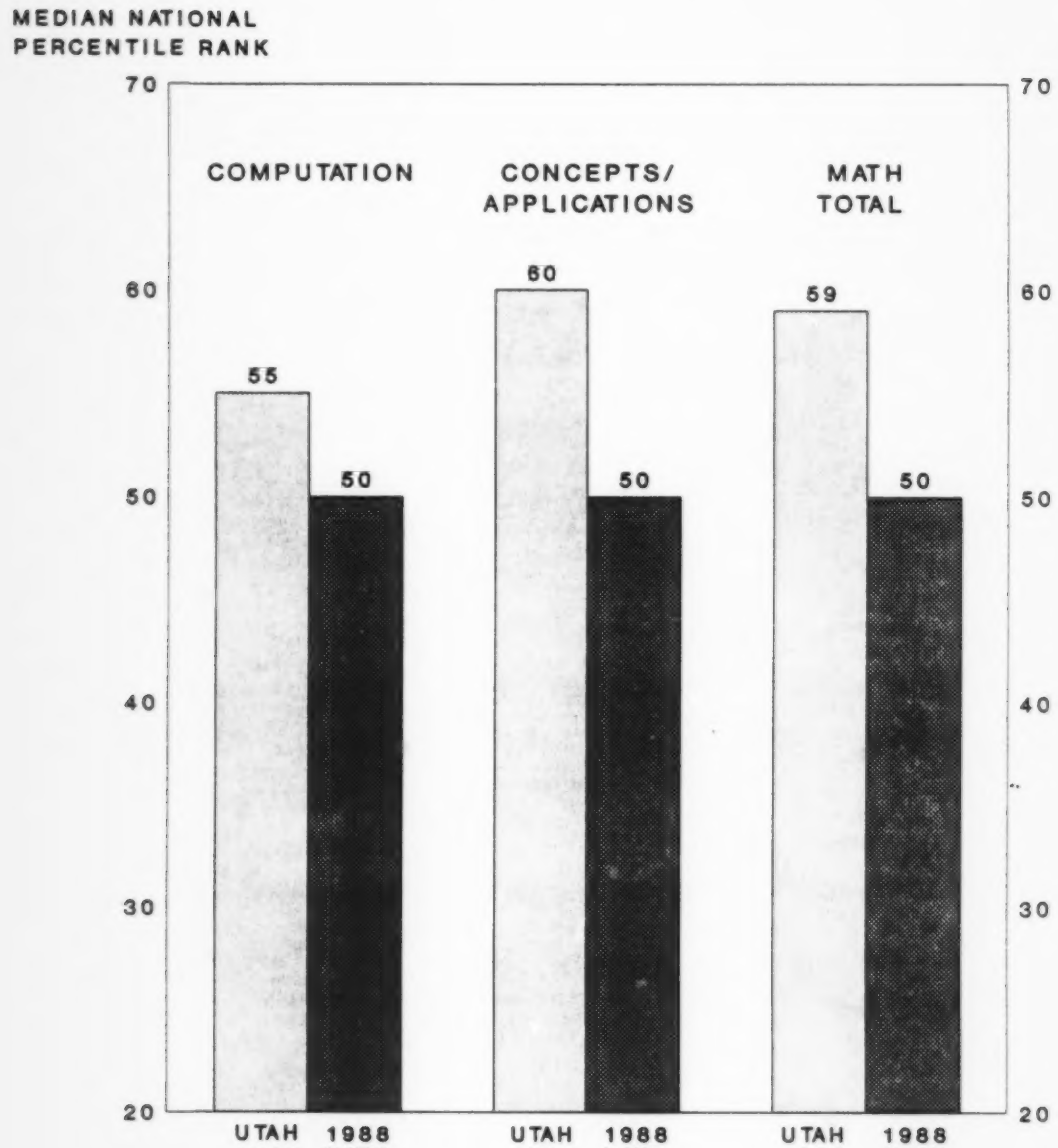


EXHIBIT 10
UTAH VS. NATIONAL RESULTS ON CTBS MATHEMATICS, GRADE 11



	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM	UTAH 1990	1988 NAT'L NORM
Median Grade Equivalent	12.9+	11.8	12.9+	11.7	12.9+	11.8
Mean Raw Score	25.6	24.3	26.2	24.9	52.0	49.2

at the bottom of the exhibit indicate that a typical Utah eleventh grader consistently exceeded the top score in the national norm tables of 12.9.

Exhibit 11 presents longitudinal information concerning eleventh grade Mathematics Total scores between 1975 and 1990, expressed in terms of the 1988 national norm. Although Utah's performance declined from 1975 to 1978, and scores in both years were below the 1988 national norm, performance has improved substantially since then. In particular, Utah's performance jumped upward from 1978 to 1981, and it improved still further in 1984 and 1987. Although there was no change between 1987 and 1990, overall, there has been a substantial pattern of growth since 1975.

The assessment also gathered information from Utah students about which mathematics courses they had taken, using the Mathematics Class Experience scale. Results from this inquiry are displayed in Exhibit 12, which shows that more mathematics courses were being taken in 1990 than in 1987 for each of the five mathematics classes.

The number of mathematics courses taken was related to students' achievement on the CTBS Mathematics test. The magnitude of this relationship is exemplified in the results displayed in Exhibit 13. As can be seen from this exhibit, students who had taken certain mathematics courses had much higher Mathematics Total scores than students who had not. For example, students who had taken first year algebra typically scored at the 64th national percentile, while students who had not taken this course typically scored only at the 35th percentile. Students who had taken second year algebra typically scored at the 70th percentile, while those who had not taken this course scored at only the 32nd percentile. Similarly, students who had taken geometry typically scored at the 69th percentile while students who had not taken geometry typically scored at only the 42nd percentile. This same impact is shown in the median grade equivalent scores displayed at the bottom of the exhibit. To some extent, the observed impact of taking more mathematics courses is inflated, because it is the more talented students who are encouraged to take more demanding mathematics courses; these students would be expected to get higher scores in any case. However, this phenomenon accounts for only a part of the observed differences in scores. As requirements have increased. a broader range of students are now taking these mathematics courses. To a considerable extent, the practice of taking more mathematics courses generally improves students' mathematics achievement as measured by CTBS.

CORRELATES OF ACHIEVEMENT IN THE BASIC SKILLS

Students with high performance on basic skills achievement also tended to be above average on Academic Self-Concept, for both fifth and eleventh grades (the correlations ranged from .32 to .42) indicating that students who perform well in the basic academic areas tend to feel better about their academic ability, and vice versa. The basic skills achievement measures were less related to other measures of student characteristics such as

EXHIBIT 11
CHANGES ACROSS TIME IN UTAH RESULTS ON CTBS MATHEMATICS TOTAL SCORE, GRADE 11

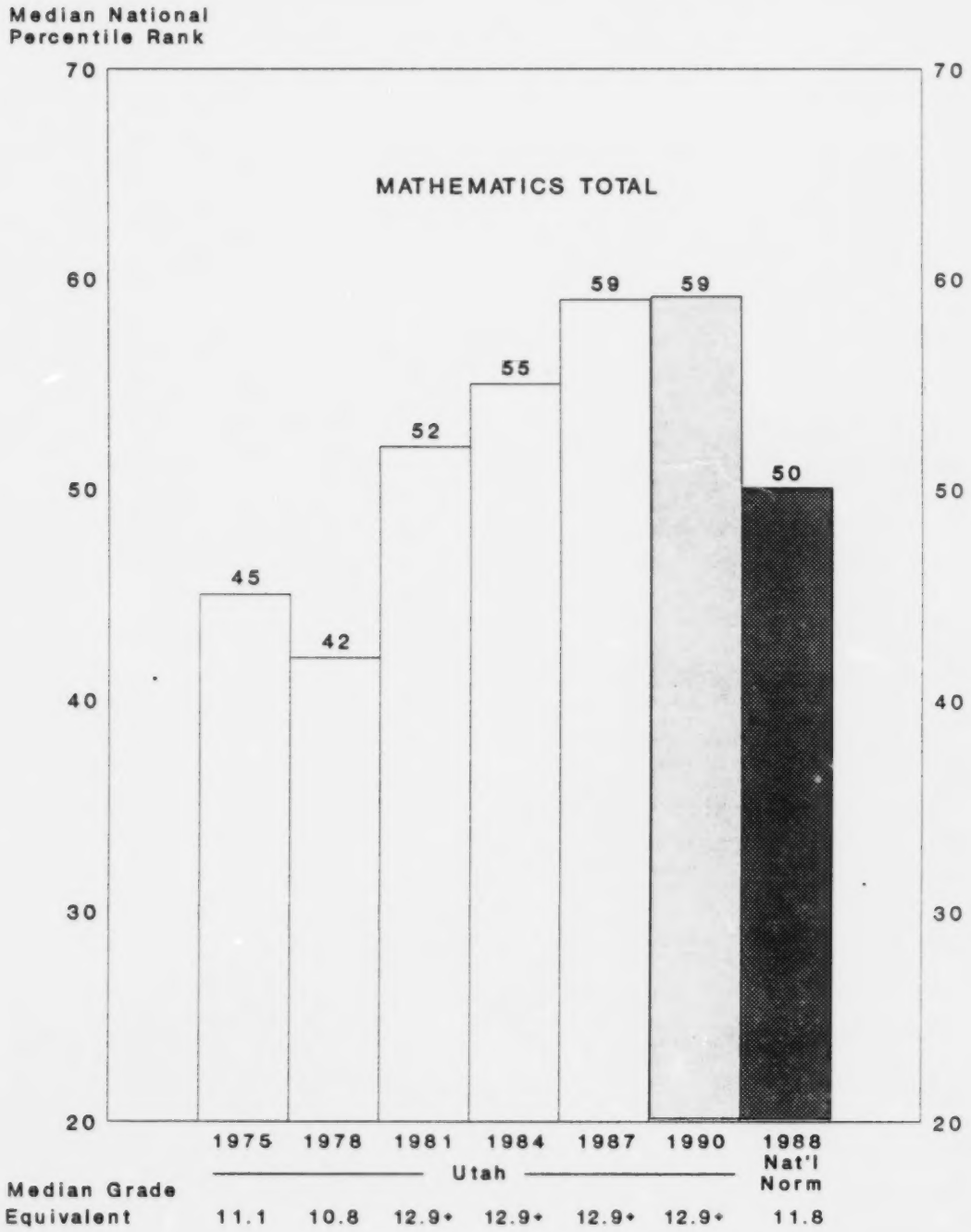


EXHIBIT 12
PERCENT OF STUDENTS WHO HAVE TAKEN SPECIFIC MATHEMATICS COURSES, GRADE 11

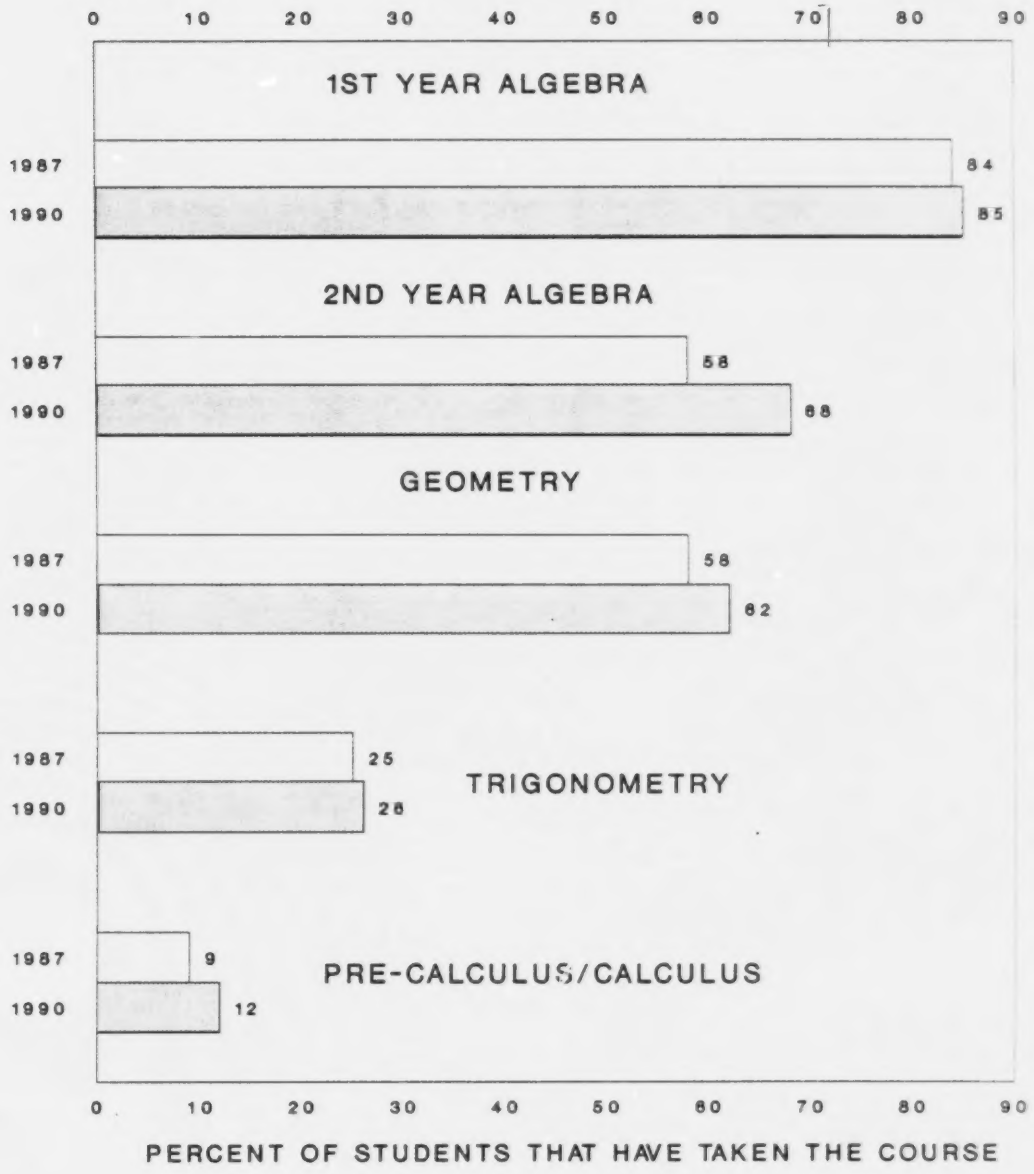
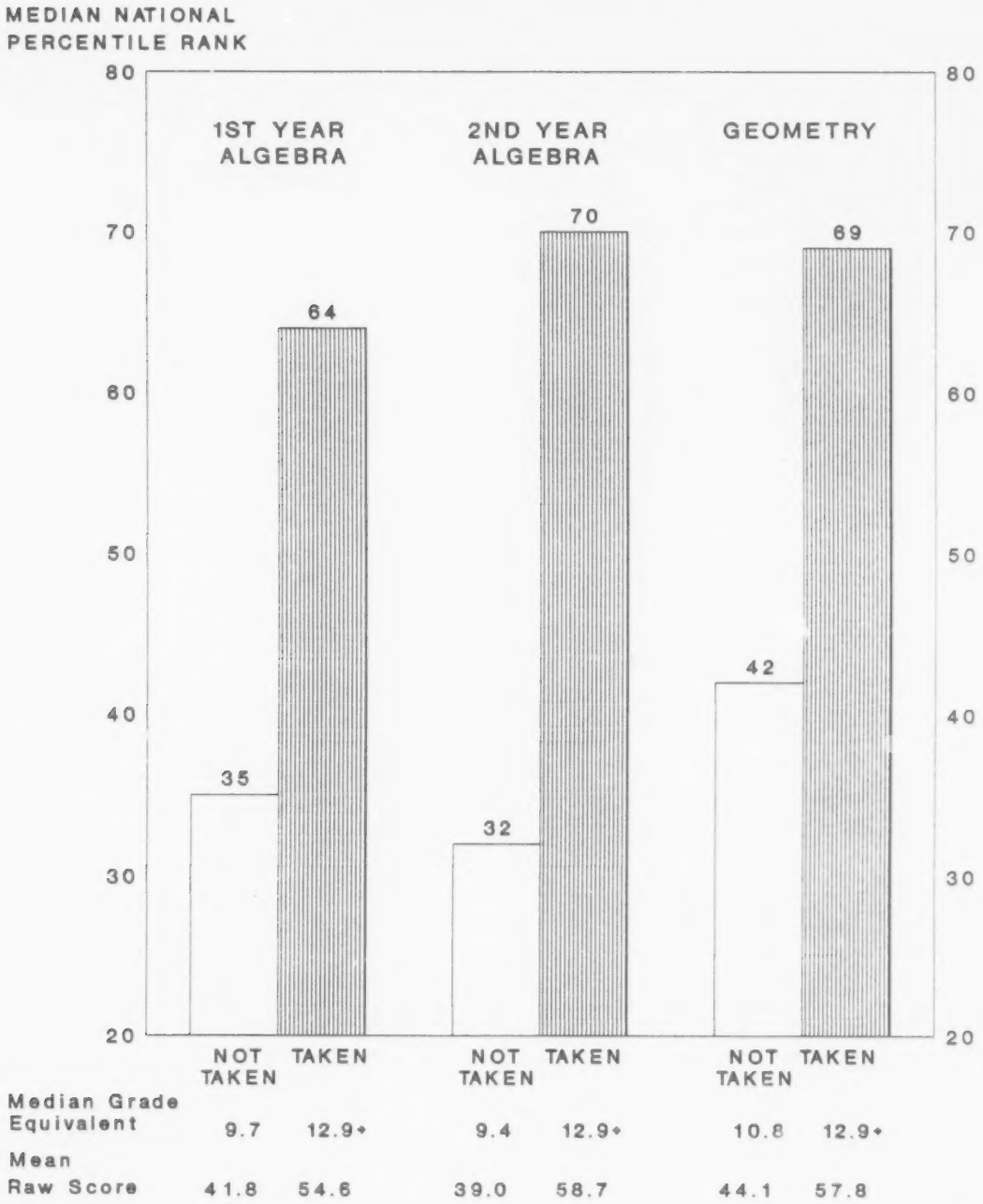


EXHIBIT 13

RESULTS ON CTBS MATHEMATICS TOTAL SCORE FOR STUDENTS WHO HAVE VS. HAVE NOT TAKEN SPECIFIC MATHEMATICS COURSES, GRADE 11



peer relations, enjoyment of school, independent development, etc. These results indicate that measures of basic skills are not good indicators of these other aspects of student performance.

The relationships between basic skills achievement and the educational process measures were somewhat mixed. For this analysis, the basic skills scores of grade 5 students within each classroom were averaged and correlated with the average scores of the students on the educational process measures -- basically how often the various processes were used. The results of this analysis indicated that four of the educational process measures -- Reinforcement of Self-Concept, Development of Career Talents, Academic Learning Time, and Feedback -- were significantly correlated with one or more CTBS achievement scores. For example, the Academic Learning Time measure was significantly related to basic skills achievement (correlations ranging from .29 to .39), indicating that students learn more effectively in orderly classrooms where more time is spent on task and lessons are presented in a manner that students can understand. Finally, although the Expectations scale (used in all five previous Utah assessments) was a significant predictor of reading and mathematics achievement in 1975, that positive relationship has declined in subsequent Assessments. Some of the complexities of the Expectations scale's changing relationships with other measures are discussed later in this report.

In examining demographic measures, a by-now-familiar finding was that students from families with high socioeconomic status (SES) tended to have higher achievement scores (correlations ranging from .35 to .41 at grade 5 and from .33 to .37 at grade 11). These results once more confirm previous research findings which indicate the important influence of the home environment on student learning. In a similar vein, SES was related to race which, in turn, was related to achievement test scores (correlations ranging from .21 to .23 at grade/5 and from .18 to .22 at grade 11), with whites continuing to do better on these measures than racial minorities. These results suggest that continuing attention by educators to the needs of lower SES and minority children is needed to develop their potential.

SUMMARY

Basic skills achievement was measured using the Reading, Language Expression, and Mathematics portions of the Comprehensive Tests of Basic Skills, Fourth Edition. Information was also gathered on eleventh grade mathematics class experience. The results indicate:

(1) *Reading:* At both the fifth and eleventh grades, the reading achievement of Utah students remained essentially stable between 1987 and 1990. The 1990 Utah results exceeded the 1988 national norms slightly at the fifth grade (54th percentile) and more markedly at the eleventh grade (61st percentile).

(2) *Language Expression:* At both the fifth and eleventh grades, the Language Expression scores for Utah students declined from 1987 to 1990; the change was significant at Grade 5. Language Expression skills were still high at the eleventh grade, at the 59th percentile, and barely below the 1988 national average at the fifth grade level, at the 49th percentile.

(3) *Mathematics:* At both the fifth and eleventh grades, Utah students had higher levels of achievement than the 1988 national norms and a clear pattern of growth since the earliest assessment. Grade 5 performance has increased since 1987 while the performance of eleventh grade students remained stable compared to 1987.

(4) *Mathematics Class Experience:* More Utah eleventh grade students in 1990 had taken advanced mathematics courses than in 1987. Students who had taken these mathematics courses had substantially higher mathematics achievement than students who had not taken the courses. The Mathematics Class Experience increases are reflected in the generally higher mathematics results obtained since 1975.

(5) Students with higher levels of basic skills achievement had higher Academic Self-Concept scores; the relationships between the basic achievement measures and other measures of student performance were limited.

(6) Higher levels of basic skills were achieved by students in classrooms with more academic learning time, reinforcement of self-concept, feedback, and development of career talents.

(7) Students from families with high socioeconomic status (SES) tended to have higher achievement scores. Racial minorities tended to be below average on the SES measure and on the tests of basic skills.

III. STUDENT ATTITUDES AND OTHER CHARACTERISTICS

CHAPTER III
STUDENT ATTITUDES AND OTHER CHARACTERISTICS

Measures of emotional, social, aesthetic, and productive maturity, along with attitude toward school, were developed specifically for the 1975 Utah Statewide Educational Assessment, and have been included in every assessment since. Such measurement is important in providing a balanced picture of the effectiveness of the educational system. It augments the testing of basic skills with information that can help us understand how the system affects other important areas of student performance. This chapter provides the results obtained from these complimentary measures.

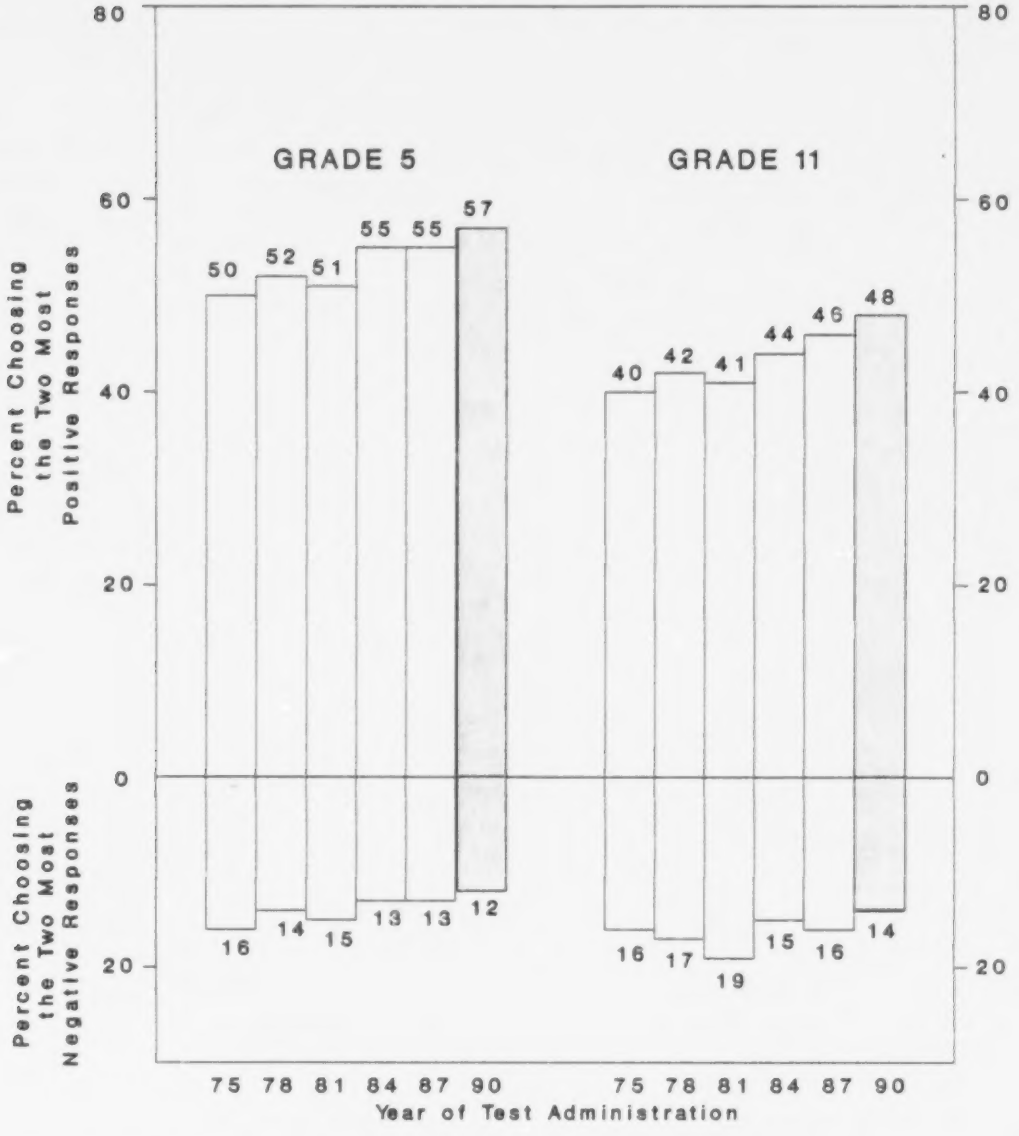
Results on the measures in this area are presented in Exhibits 14 through 30; discussion and commentary are reserved for a summary section which begins below and concludes following the exhibits. In general, each score area is represented by a bar chart (with an accompanying score area description) showing trends across time, and by an exhibit showing results on selected items. However, the original Music Achievement and Art Achievement scales (with 23 and 25 items in them) were reduced to only five items each for the 1984 assessment to allow room in the total battery for other measures; these score areas are represented only by exhibits showing results on the five selected items. Also, since career planning is an important school-aided part of productive maturity, an exhibit showing eleventh grade results on selected career planning items is presented.

SUMMARY

Attainment of Utah's educational goals in areas other than intellectual maturity was measured using a variety of scales and a number of supplementary items. Where possible, results for 1990 were compared to those of previous Utah Statewide Educational Assessments.

(1) *Academic Self-Concept:* Student scores on Academic Self-Concept increased slightly and to all-time highs at both grade levels. Students with high scores on Academic Self-Concept tended to have high scores on all the other educational outcome measures. For example, students with high Academic Self-Concept scores also tended to be above average on the tests of basic academic skills and to have higher scores for Enjoyment of School. Students' self-concept was apparently bolstered by teacher practices related to more Academic Learning Time (fifth grade classroom-level $r = .50$), Reinforcement of Self-Concept ($r = .385$), Development of Career Talents ($r = .29$) and Feedback ($r = .42$).

EXHIBIT 14
RESULTS FROM THE ACADEMIC SELF-CONCEPT SCALE
GRADES 5 AND 11



The Academic Self-Concept scale was targeted at Utah's Emotional Maturity Goal area, specifically focusing on the educational objectives of enhancing positive self-image and developing an accurate insight into one's own capabilities and limitations. The 9-item scale measured the students' confidence in their academic abilities by asking them to respond to items describing their ability to learn things quickly, plan, persevere, work independently, and remember. Students with high scores on this scale reported an outstanding or very good ability to stick with schoolwork until it was finished, plan and carry out schoolwork, do what their teachers wanted them to do, pay attention to school tasks, and think clearly under academic pressure.

CHAPTER III
STUDENT ATTITUDES AND OTHER CHARACTERISTICS

Measures of emotional, social, aesthetic, and productive maturity, along with attitude toward school, were developed specifically for the 1975 Utah Statewide Educational Assessment, and have been included in every assessment since. Such measurement is important in providing a balanced picture of the effectiveness of the educational system. It augments the testing of basic skills with information that can help us understand how the system affects other important areas of student performance. This chapter provides the results obtained from these complimentary measures.

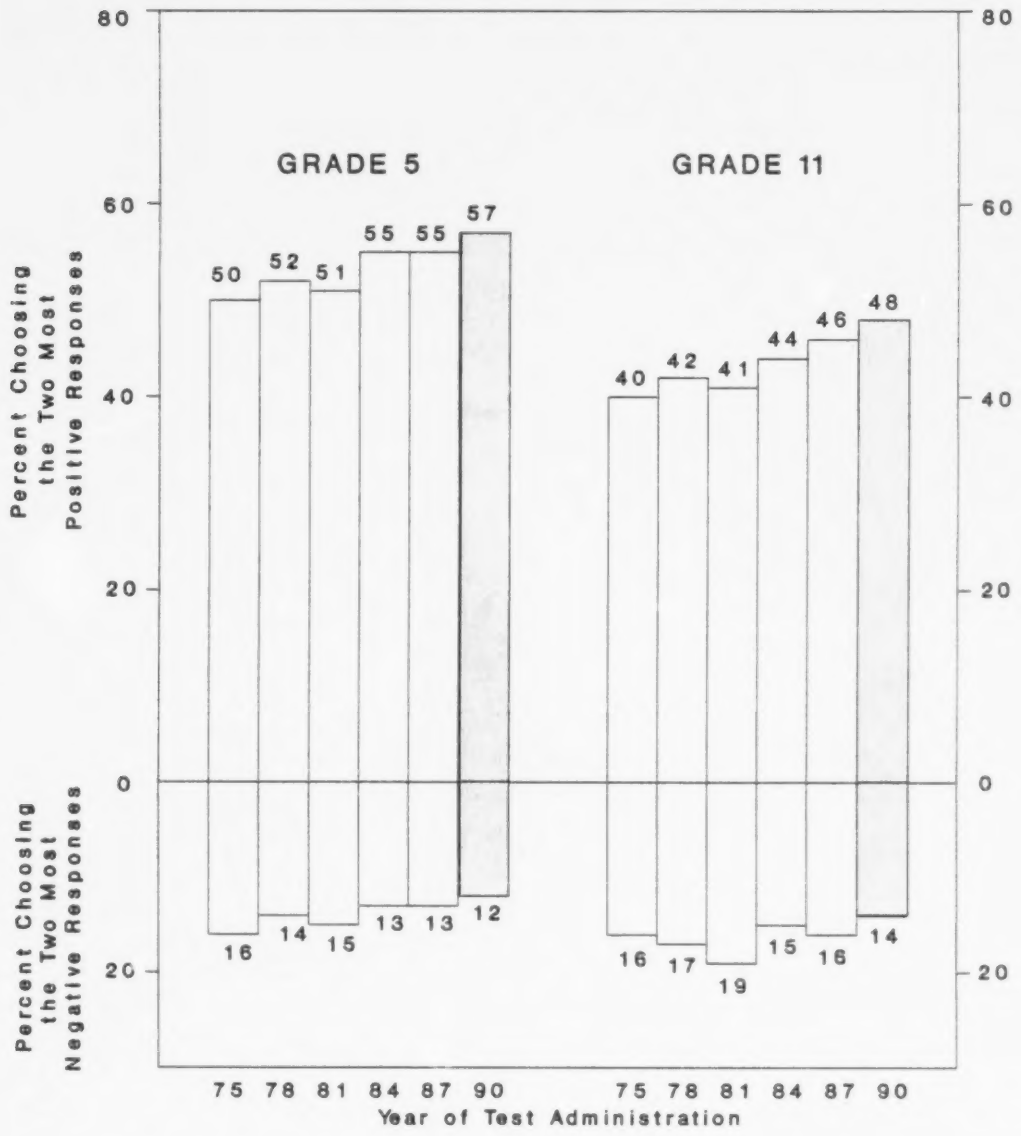
Results on the measures in this area are presented in Exhibits 14 through 30; discussion and commentary are reserved for a summary section which begins below and concludes following the exhibits. In general, each score area is represented by a bar chart (with an accompanying score area description) showing trends across time, and by an exhibit showing results on selected items. However, the original Music Achievement and Art Achievement scales (with 23 and 25 items in them) were reduced to only five items each for the 1984 assessment to allow room in the total battery for other measures; these score areas are represented only by exhibits showing results on the five selected items. Also, since career planning is an important school-aided part of productive maturity, an exhibit showing eleventh grade results on selected career planning items is presented.

SUMMARY

Attainment of Utah's educational goals in areas other than intellectual maturity was measured using a variety of scales and a number of supplementary items. Where possible, results for 1990 were compared to those of previous Utah Statewide Educational Assessments.

(1) *Academic Self-Concept:* Student scores on Academic Self-Concept increased slightly and to all-time highs at both grade levels. Students with high scores on Academic Self-Concept tended to have high scores on all the other educational outcome measures. For example, students with high Academic Self-Concept scores also tended to be above average on the tests of basic academic skills and to have higher scores for Enjoyment of School. Students' self-concept was apparently bolstered by teacher practices related to more Academic Learning Time (fifth grade classroom-level $r = .50$), Reinforcement of Self-Concept ($r = .385$), Development of Career Talents ($r = .29$) and Feedback ($r = .42$).

EXHIBIT 14
RESULTS FROM THE ACADEMIC SELF-CONCEPT SCALE
GRADES 5 AND 11

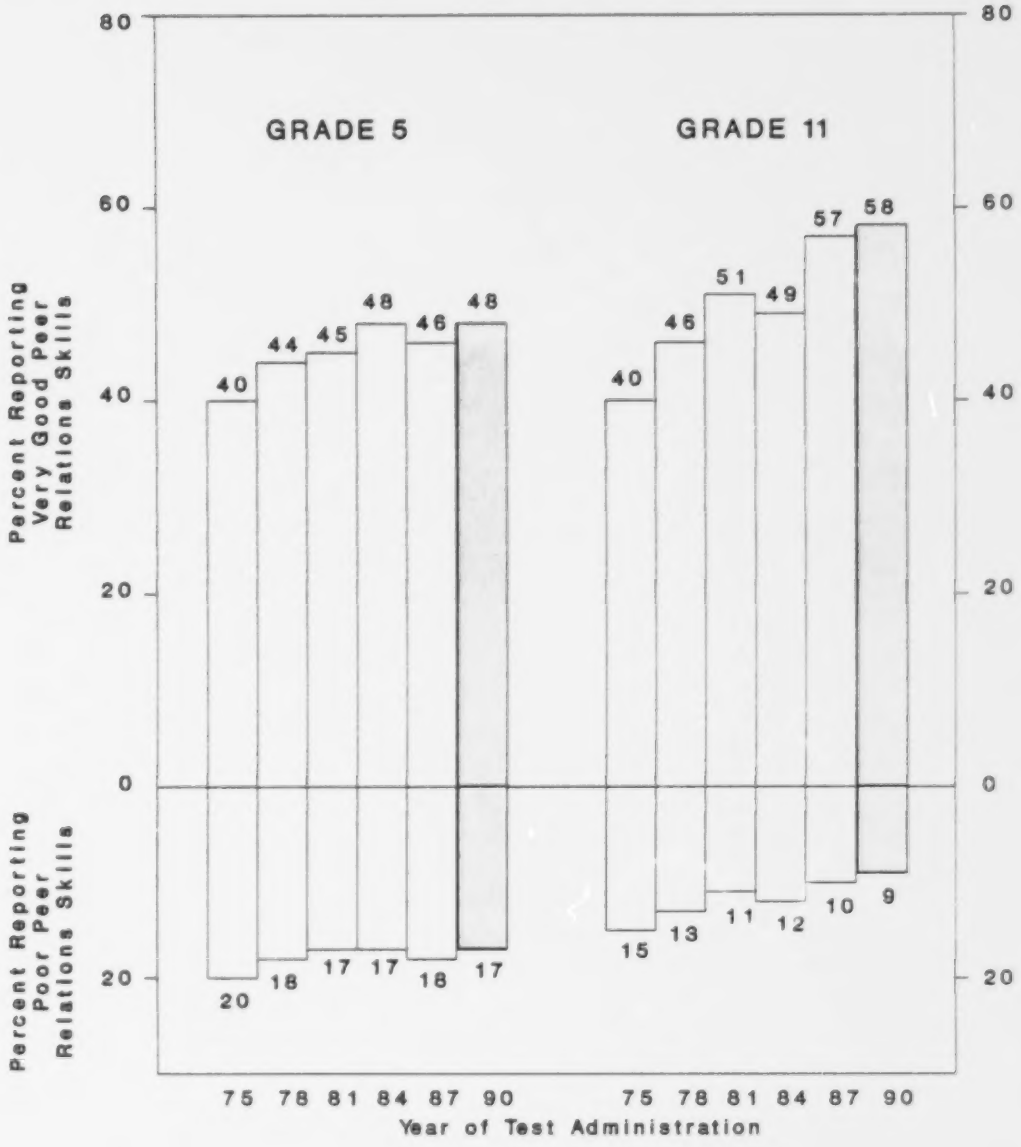


The Academic Self-Concept scale was targeted at Utah's Emotional Maturity Goal area, specifically focusing on the educational objectives of enhancing positive self-image and developing an accurate insight into one's own capabilities and limitations. The 9-item scale measured the students' confidence in their academic abilities by asking them to respond to items describing their ability to learn things quickly, plan, persevere, work independently, and remember. Students with high scores on this scale reported an outstanding or very good ability to stick with schoolwork until it was finished, plan and carry out schoolwork, do what their teachers wanted them to do, pay attention to school tasks, and think clearly under academic pressure.

EXHIBIT 15
RESULTS FOR SELECTED ITEMS FROM THE
ACADEMIC SELF-CONCEPT SCALE, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
1. My ability to learn things quickly is:		
A. Outstanding	15%	12%
B. Very good	36%	47%
C Good	40%	34%
D. A little weak	9%	6%
E. Rather poor	1%	0%
2. My ability to stick with schoolwork until it is finished is:		
A. Outstanding	20%	7%
B. Very good	31%	26%
C. Good	31%	38%
D. A little weak	17%	26%
E. Rather poor	2%	3%
3. My ability to do schoolwork is:		
A. Outstanding	24%	11%
B. Very good	38%	41%
C. Good	31%	38%
D. A little weak	7%	9%
E. Rather poor	1%	1%
4. My ability to plan and carry out my schoolwork is:		
A. Outstanding	16%	7%
B. Very good	34%	29%
C. Good	36%	42%
D. A little weak	12%	20%
E. Rather poor	2%	2%
5. My ability to do what my teachers want me to do is:		
A. Outstanding	33%	19%
B. Very good	35%	43%
C. Good	24%	32%
D. A little weak	7%	6%
E. Rather poor	2%	0%

EXHIBIT 16
RESULTS FROM THE PEER RELATIONS SCALE, GRADES 5 AND 11

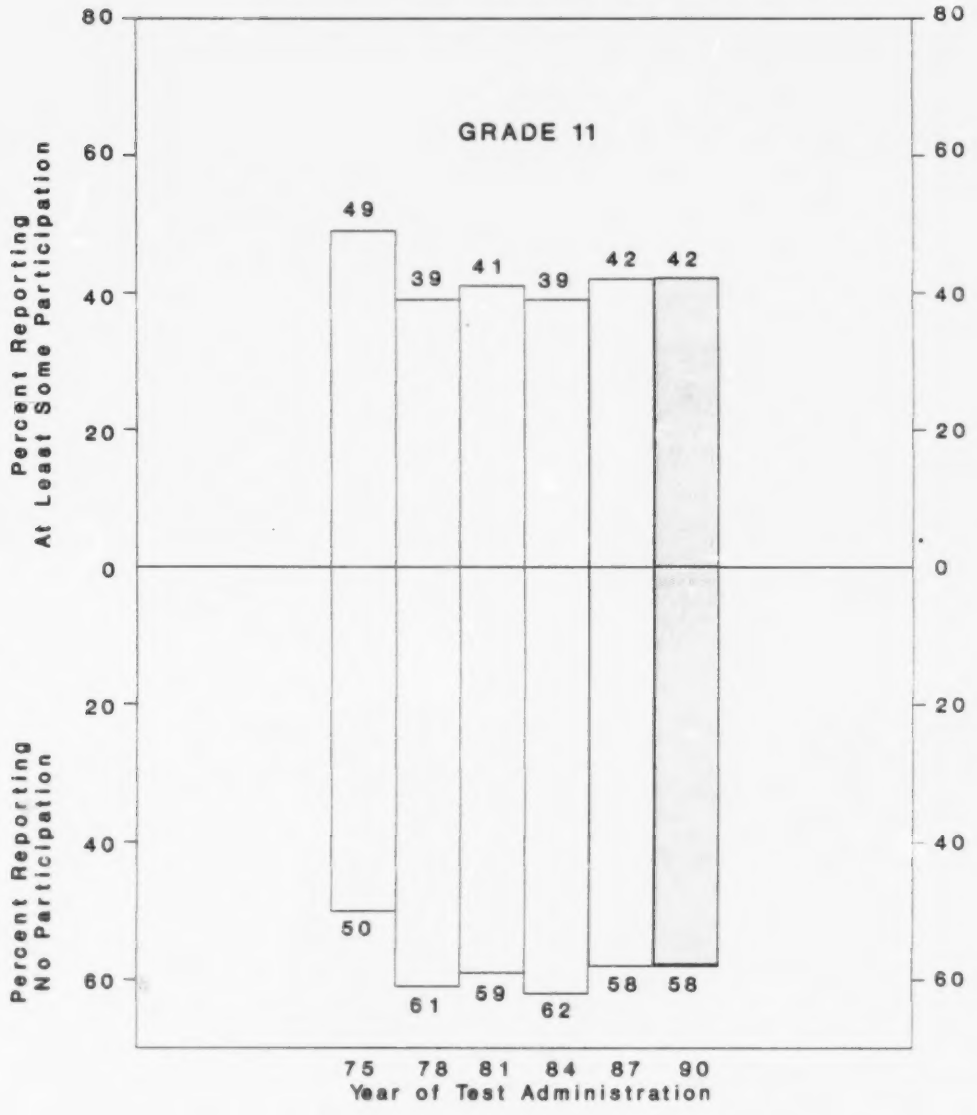


The Peer Relations scale was used to assess outcomes from the Social Maturity Goal area. The 15-item scale measured the students' level of interpersonal skills, including cooperative skills, ability to help others solve problems and accomplish tasks, and ability to take responsibility. Students with high scores were more likely to report that they were outstanding or very good at getting others to understand their feelings, making friends with new students, sharing ideas and feelings with close friends, working with other students as part of a team effort, understanding how other students feel about things, getting others to see the humor in things, helping their friends get along with each other, and making their friends enjoy visits to their homes.

EXHIBIT 17
RESULTS FOR SELECTED ITEMS FROM THE
PEER RELATIONS SCALE, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
HOW GOOD ARE YOU AT:		
1. Sharing your ideas or feelings with close friends?		
A. Outstanding	29%	35%
B. Very good	30%	37%
C. Good	26%	19%
D. A little weak	10%	7%
E. Rather poor	4%	1%
2. Working with other students as part of a team effort?		
A. Outstanding	25%	23%
B. Very good	36%	44%
C. Good	30%	27%
D. A little weak	6%	5%
E. Rather poor	2%	1%
3. Helping your friends to get along with each other?		
A. Outstanding	17%	13%
B. Very good	29%	40%
C. Good	37%	38%
D. A little weak	13%	8%
E. Rather poor	4%	1%
4. Helping someone who is angry and upset calm down and relax?		
A. Outstanding	15%	18%
B. Very good	26%	39%
C. Good	38%	36%
D. A little weak	14%	6%
E. Rather poor	6%	1%

EXHIBIT 18
RESULTS FROM THE EXTRACURRICULAR ACTIVITIES SCALE, GRADE 11



The Extracurricular Activities scale was used at the 11th grade level as an additional measure of social maturity, assessing students' level of involvement in school-related activities outside of classwork. Students who scored high on this 8-item scale responded that they frequently participated in activities such as journalism, music, art, drama or dance, and were involved in organizations related to business, politics, school, and sport support. The scale did not assess participation in interscholastic or intramural sports activities.

EXHIBIT 19
RESULTS FOR SELECTED ITEMS FROM THE
EXTRACURRICULAR ACTIVITIES SCALE, GRADE 11

Item	*Percent of Students Choosing Each Alternative* 1984	1987	1990
How often do you participate in:			
1. Journalism (newspaper, yearbook, literary publications)?			
A. Very often (almost every day)	6%	5%	6%
B. Quite often (about once a week)	2%	3%	3%
C. Somewhat often (about once a month)	7%	5%	7%
D. Not very often (once a term or less)	15%	17%	16%
E. Do not participate	70%	70%	69%
2. Music (band, choir, orchestra)?			
A. Very often (almost every day)	21%	21%	24%
B. Quite often (about once a week)	3%	4%	4%
C. Somewhat often (about once a month)	5%	7%	6%
D. Not very often (once a term or less)	9%	8%	10%
E. Do not participate	62%	60%	56%
3. Drama or dance?			
A. Very often (almost every day)			
B. Quite often (about once a week)	18%	19%	17%
C. Somewhat often (about once a month)	6%	7%	6%
D. Not very often (once a term or less)	8%	9%	10%
E. Do not participate	11%	12%	13%
	58%	53%	54%
4. Business activities (DECA, Marketing Club)?			
A. Very often (almost every day)	7%	8%	4%
B. Quite often (about once a week)	5%	5%	5%
C. Somewhat often (about once a month)	5%	7%	9%
D. Not very often (once a term or less)	12%	13%	13%
E. Do not participate	71%	67%	69%
5. Political activities (student government)?			
A. Very often (almost every day)	5%	3%	3%
B. Quite often (about once a week)	4%	4%	4%
C. Somewhat often (about once a month)	8%	7%	7%
D. Not very often (once a term or less)	13%	12%	14%
E. Do not participate	70%	74%	72%

EXHIBIT 20

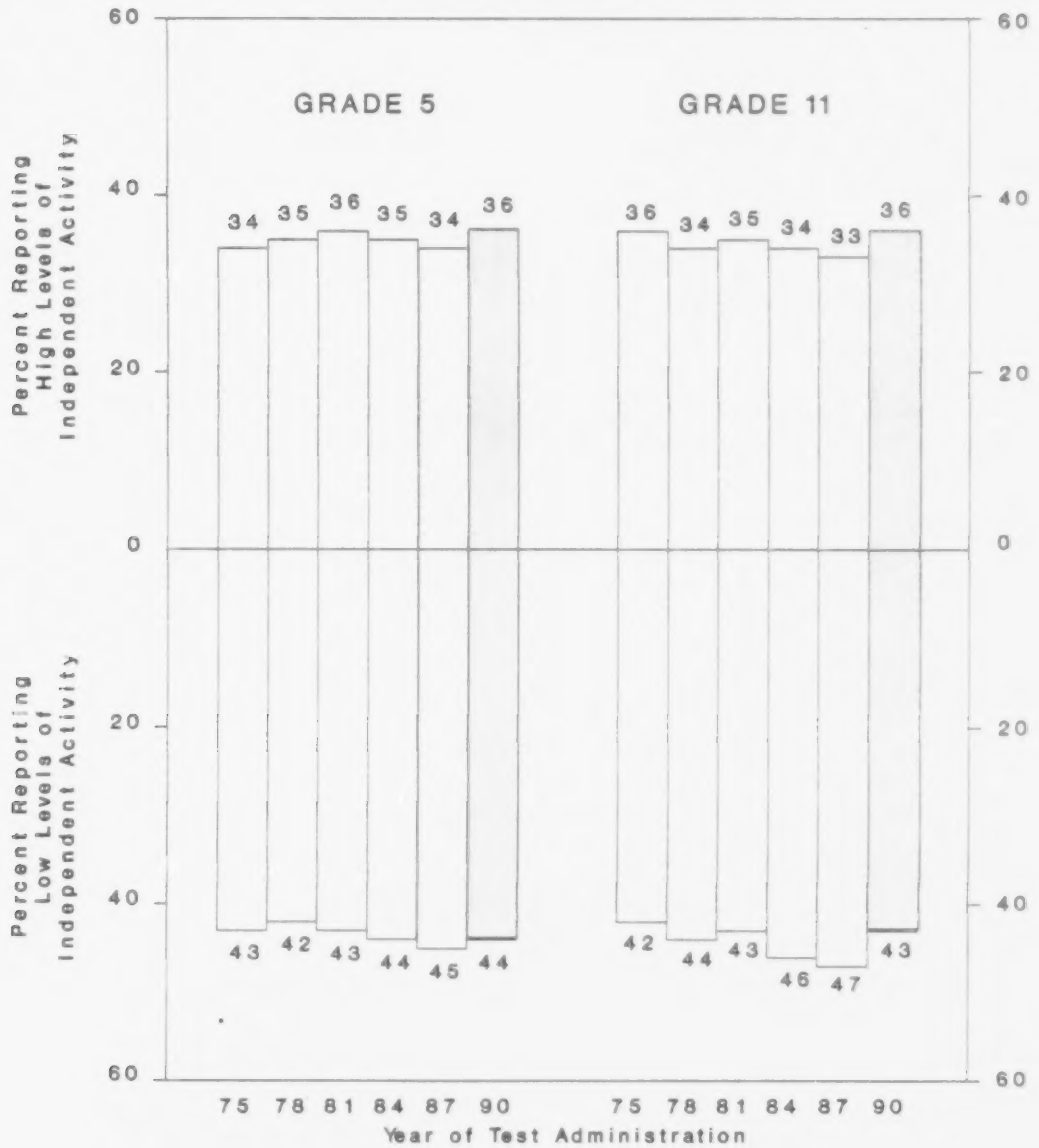
RESULTS FOR SELECTED MUSIC ACHIEVEMENT ITEMS, GRADES 5 AND 11

Item	Percent of Students Responding Correctly Grade 5 1987	Grade 5 1990	Grade 11 1987	Grade 11 1990
1. If you were listening to loud, fast music with drums and cymbals being played, what would you probably feel like doing? A. Sitting quietly to listen B. Marching or moving with the music C. Swaying gently D. Dancing slowly E. Don't know	54%	55%	78%	77%
2. Who composed the Nutcracker Suite (Waltz of the Flowers)? A. George Frederick Handel B. Peter Ilyich Tchaikovsky C. John Philip Sousa D. Sergei Prokofiev E. Don't know	21%	24%	40%	40%
3. Which of the following would you use to suggest the idea of thunder? A. Bass B. Baritone C. Tenor D. Soprano E. Don't know	42%	48%	69%	69%
4. Harmony is: A. any string of consecutive pitches. B. two or more pitches sounded together. C. a series of consecutive pitches that have some unity. D. a short repeated pattern of pitches. E. Don't know	25%	25%	35%	33%
5. Which one of these musical instruments is <u>least</u> like the others? A. Cymbals B. Drum C. Triangle D. Clarinet E. Don't know	40%	45%	72%	82%

EXHIBIT 21
RESULTS FOR SELECTED ART ACHIEVEMENT ITEMS, GRADES 5 AND 11

Item	*Percent of Students Responding Correctly*			
	Grade 5		*Grade 11*	
	1987	1990	1987	1990
1. In drawing or painting a picture, the look of depth is created when people or objects are: A. side by side. B. on a base line. C. in front of one another. D. Don't know	25%	26%	61%	63%
2. Most colors you can imagine come from mixing which of the following colors? A. Black, white, and gray B. Red, green, and white C. Red, yellow, and blue D. Yellow, blue, and green E. Don't know	48%	51%	75%	76%
3. Which of the following describes the appearance of objects as they get farther and farther away? A. More three-dimensional B. More hazy, bluish-gray C. Smaller but more detailed D. Lower in the picture E. Don't know	18%	22%	44%	44%
4. Which background color would make a bright red stand out most? A. Pink B. Orange C. Light gray D. Don't know	46%	48%	69%	71%
5. The purpose of a thing influences its shape. A. True B. False C. Don't know	37%	36%	60%	59%

EXHIBIT 22
RESULTS FROM THE INDEPENDENT DEVELOPMENT SCALE, GRADES 5 AND 11

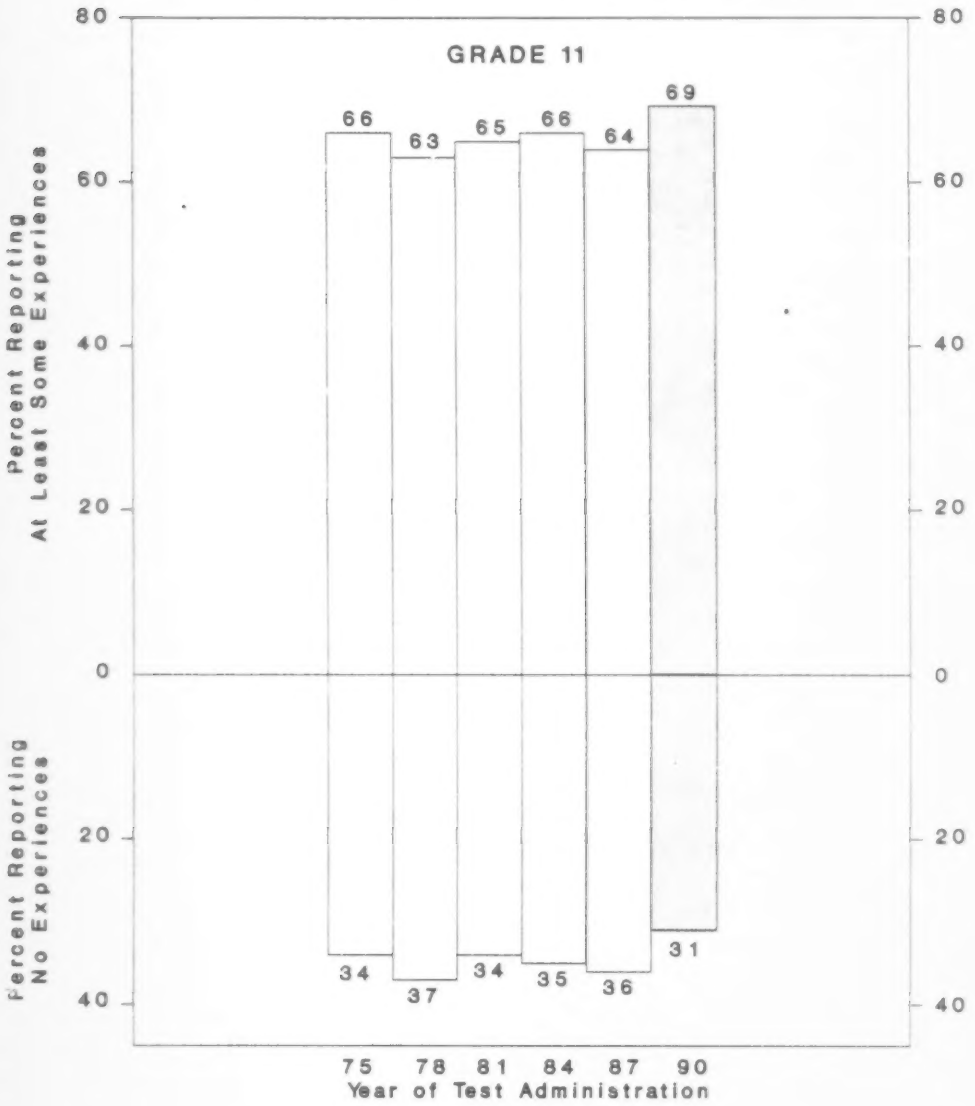

GRADE 5
GRADE 11
Percent Reporting High Levels of Independent Activity
Percent Reporting Low Levels of Independent Activity
60
40
20
0
34 35 36 35 34 36
36 34 35 34 33 36
43 42 43 44 45 44
42 44 43 46 47 43
75 78 81 84 87 90
75 78 81 84 87 90
Year of Test Administration

The Independent Development scale assessed attainment of objectives from Utah's Productive Maturity Goal area, measuring the extent to which students independently participate in self-initiated learning activities which increase their general competence. Students with high scores on this 23-item scale reported that they often extended the scope of material learned in school by working on something at home to learn more about it, visited the library to get additional information not needed for classwork, read an advanced text to learn more about a subject, studied mathematics or science out of school, worked on mechanical equipment to learn more about it, read extensively in different subject matter areas, and read the first page of the newspaper.

EXHIBIT 23
RESULTS FOR SELECTED ITEMS FROM THE
INDEPENDENT DEVELOPMENT SCALE, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
HOW OFTEN DO YOU:		
1. Work on something at home just so you can learn more about it?		
A. Not very often	30%	26%
B. About once or twice a month	15%	25%
C. About once a week	20%	25%
D. A few times a week	22%	19%
E. Once a day or more	13%	4%
2. Visit your library to get additional information not really needed for your classwork?		
A. Not very often	42%	51%
B. About once or twice a month	26%	32%
C. About once a week	18%	11%
D. A few times a week	10%	6%
E. Once a day or more	3%	1%
3. Work on some mechanical equipment to learn more about it?		
A. Not very often	53%	52%
B. About once or twice a month	17%	20%
C. About once a week	11%	11%
D. A few times a week	10%	10%
E. Once a day or more	9%	6%
4. Read the first page of the daily newspapers?		
A. Not very often	55%	26%
B. About once or twice a month	13%	16%
C. About once a week	12%	21%
D. A few times a week	12%	19%
E. Once a day or more	8%	18%
5. Practice doing something at home just because you want to do it better?		
A. Not very often	9%	7%
B. About once or twice a month	11%	17%
C. About once a week	15%	22%
D. A few times a week	26%	33%
E. Once a day or more	40%	21%

EXHIBIT 24
RESULTS FROM THE CAREER DEVELOPMENT EXPERIENCES SCALE, GRADE 11



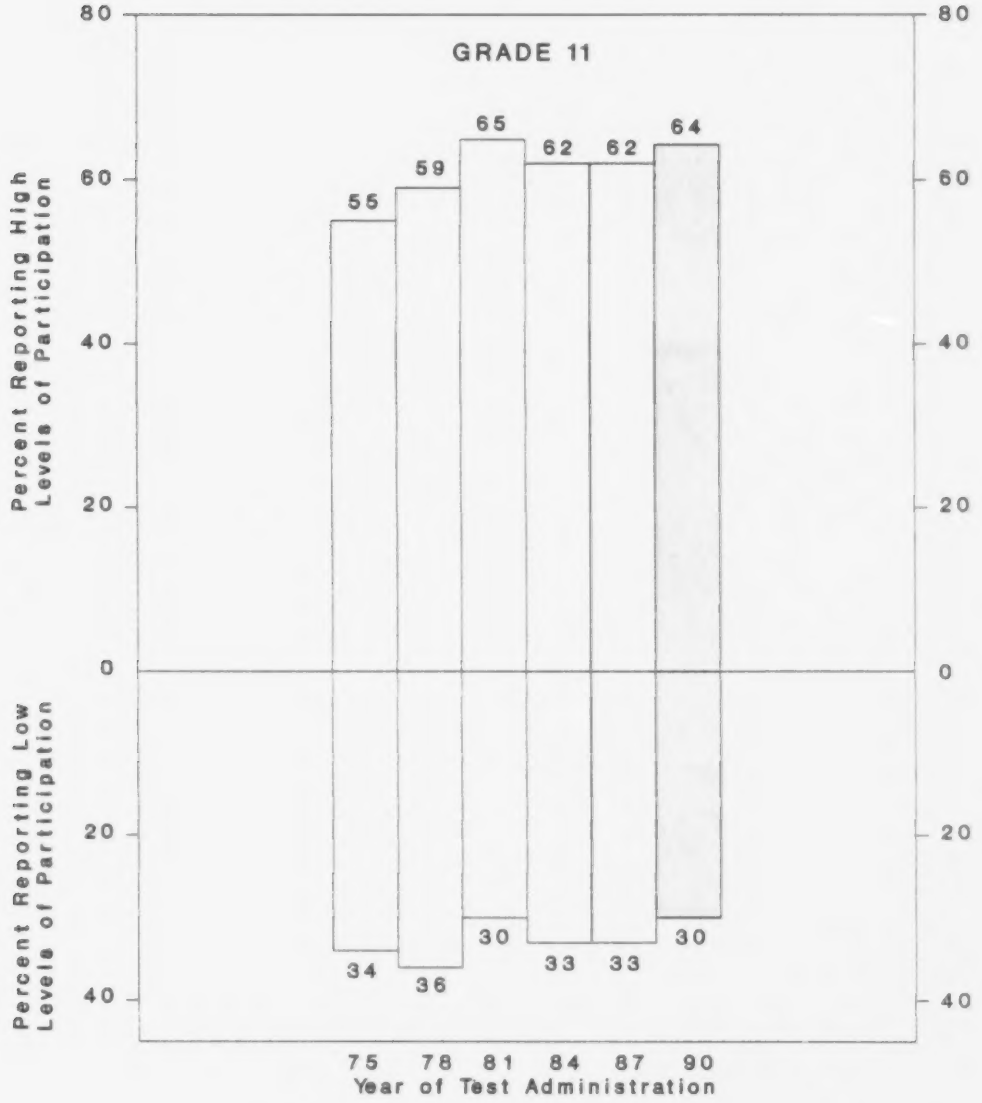
The Career Development Experiences scale was used at the 11th grade level as an additional measure of productive maturity, focusing on career development activities and experiences provided by the school rather than initiated by the individual student. Students with high scores on this 10-item scale had participated in numerous school activities which examined and evaluated career possibilities during the school year; this included comparing jobs on the basis of training requirements and other considerations, studying how different jobs might influence one's life, preparing a summary of job qualifications, and studying how hobbies and spare time interests could be helpful in getting a job. The scale provides an indication of how much emphasis is given to career development as part of the school curriculum.

EXHIBIT 25
RESULTS FOR SELECTED ITEMS FROM THE
CAREER DEVELOPMENT EXPERIENCES SCALE, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
How often have you done the following activities during this school year?		
1. Studied different jobs and how much education and training they require.		
A. Not at all	31%	15%
B. At least once or twice	46%	51%
C. A number of times	22%	34%
2. Studied how jobs might change in the next 10 years.		
A. Not at all	41%	31%
B. At least once or twice	42%	50%
C. A number of times	16%	18%
3. Studied how different jobs might influence your life.		
A. Not at all	36%	20%
B. At least once or twice	44%	49%
C. A number of times	19%	31%
4. Studied how jobs may differ in terms of opportunities for advancement, security, etc.		
A. Not at all		27%
B. At least once or twice	*	50%
C. A number of times		22%
5. Studied how fast subject matter information changes as new knowledge is discovered.		
A. Not at all		42%
B. At least once or twice	*	43%
C. A number of times		14%
6. Compared the good and bad things of two different jobs.		
A. Not at all		23%
B. At least once or twice	*	52%
C. A number of times		25%

* *Items not available at 5th grade.*

EXHIBIT 26
RESULTS FROM THE CAREER AWARENESS AND EXPLORATION SCALE, GRADE 11

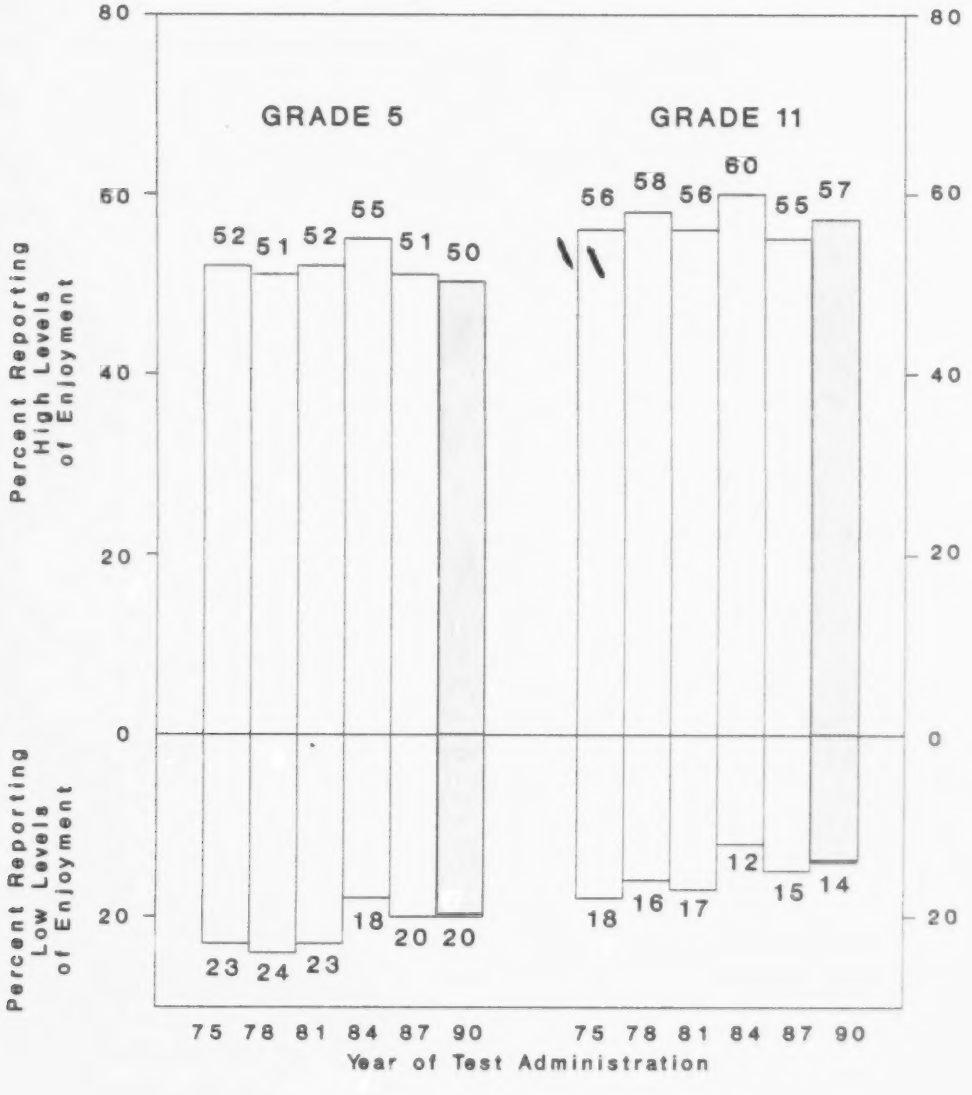


The Career Awareness and Exploration scale was used at the 11th grade level as a measure of productive maturity, assessing student awareness, planning, and initiative in dealing with career choices. Students with high scores on this 21-item scale had considered what kinds of training or education were necessary for certain jobs, had made some plans about how much education they wanted after high school, had made some definite plans about a future career or job, had taken an interest or ability test and had the results explained to them, had investigated the requirements for an occupation in which they were interested, and had considered what kind of work would provide them an opportunity to use their talents and abilities.

EXHIBIT 27
RESULTS FOR SELECTED ITEMS FROM THE
CAREER AWARENESS AND EXPLORATION SCALE,
GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
1. How would you describe your job future?		
A. Very poor	2%	1%
B. Poor	1%	2%
C. Uncertain	12%	18%
D. Good	22%	44%
E. Very good	63%	35%
2. Have you decided upon a job or a career?		
A. Have not thought about it	6%	2%
B. Have a few ideas	33%	27%
C. Have made some tentative plans	12%	19%
D. Have made some plans and decisions	23%	35%
E. Have made definite plans and decisions	26%	17%
3. Have you decided about how much education, if any, that you want to obtain after high school?		
A. Have not thought about it	20%	3%
B. Have a few ideas	27%	12%
C. Have made some tentative plans	11%	21%
D. Have made some plans and decisions	19%	41%
E. Have made definite plans and decisions	22%	22%
4. How much have you thought about what kind of work would give you a chance to use your talents and abilities?		
A. Have not thought about this question	18%	7%
B. Have thought a little about this question	32%	30%
C. Have thought a lot about this question	47%	63%

EXHIBIT 28
RESULTS FROM THE ENJOYMENT OF SCHOOL SCALE, GRADES 5 AND 11



Students' attitude toward school was assessed using the Enjoyment of School scale. Students with high scores on this 10-item scale reported that they almost always did a lot of things in school that they enjoyed, often got excited about what was happening in class, often studied something they enjoyed learning about, would not want to transfer to a different school if given the chance, and felt that time passed quickly while they were in school.

EXHIBIT 29
RESULTS FOR SELECTED ITEMS FROM THE
ENJOYMENT OF SCHOOL SCALE, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative* Grade 5	Grade 11
1. Do you like school?		
A. Almost always	23%	23%
B. Usually	25%	40%
C. Sometimes	30%	27%
D. Not very often	10%	7%
E. Almost never	10%	3%
2. How often do you study something at school that you really enjoy learning about?		
A. Two or more times a day	32%	26%
B. About once a day	34%	39%
C. Once or twice a week	20%	23%
D. A few times a month	8%	10%
E. Almost never	6%	2%
3. How do you feel about school?		
A. Like it very much	16%	13%
B. Like it most of the time	40%	56%
C. Just accept it as necessary	18%	23%
D. Am often a little unhappy with it	10%	4%
E. Dislike it and will be glad to finish	16%	5%
4. Overall, I would say that the time I have spent in school has been:		
A. very enjoyable.	14%	14%
B. enjoyable.	30%	53%
C. so so.	40%	25%
D. pretty boring.	10%	5%
E. very boring.	6%	2%

EXHIBIT 30
RESULTS FOR SELECTED CAREER PLANNING ITEMS,
GRADE 11

Item	*Percent of Students Choosing Each Alternative* 1984	1987	1990
1. Have you worked with a counselor or teacher in preparing an individual education plan which identifies a list of courses you will take and a tentative career plan?			
A. Yes	49%	43%	44%
B. No	50%	56%	54%
2. Have you decided on a future occupation and specified a career goal that is on record at this school?			
A. Yes	50%	41%	42%
B. No	49%	58%	56%
3. During this school year, how often have you visited your school's career resource center or used materials from the center?			
A. No career resource center in this school	25%	21%	26%
B. Less than once a term	61%	65%	55%
C. 4 - 5 times	11%	10%	13%
D. More than 5 times	4%	4%	6%
4. Have you taken an interest test or inventory and had the results explained to you?			
A. No	38%	36%	33%
B. Yes, but did not have it explained	16%	15%	15%
C. Yes, but I didn't learn much	16%	20%	19%
D. Yes, and I learned something	24%	24%	27%
E. Yes, and I learned a lot	7%	5%	6%
5. Does your school provide enough training opportunities for someone like you to get a good full-time job if you want one after graduation?			
A. Yes	38%	30%	33%
B. Not sure	50%	53%	55%
C. No	12%	17%	11%

(2) *Peer Relations:* Both fifth grade and eleventh grade scores on Peer Relations increased since 1987. At the eleventh grade, scores reached a new all-time high, and the scores for fifth grade students increased significantly. Students with high scores on Peer Relations tended to have high scores on most of the other outcome measures, excluding basic skills achievement. For example, students with higher Peer Relations scores tended to have higher Academic Self-Concept scores. Grade 11 girls had higher Peer Relations scores than boys. Peer Relations was significantly affected by all five of the teacher behaviors measured by the educational process scales (with fifth grade classroom-level *r*'s ranging from .25 to .37).

(3) *Extracurricular Activities:* Assessed only at the eleventh grade level, this scale was stable compared to 1987, and it was still well below the 1975 level. Students with higher levels of extracurricular participation tended to have somewhat higher scores for Peer Relations and Independent Development. Girls were somewhat more likely than boys to participate in the types of non-athletic activities measured by this scale.

(4) *Music Achievement:* Given the five items used to assess music achievement, Grade 5 students improved their performance compared to 1987 on four out of the five; at the eleventh grade, student performance more nearly approximated the results obtained in 1987.

(5) *Art Achievement:* Based on the five items included in the assessment battery, art achievement among Utah students appears to have improved slightly at both grade levels.

(6) *Independent Development:* The good news is that Independent Development scores increased significantly at both the fifth and eleventh grades; the bad news is that a large portion (43-44%) of students reported low levels of independent learning activity. Furthermore, scores on this scale have been essentially level since 1975, in spite of the fact that the educational process measures indicate opportunities for improving this important student outcome. Students with high scores on Independent Development tended to have high scores on most of the other outcome measures. Teachers' use of strategies measured by Development of Career Talents (classroom r = .48), Reinforcement of Self-Concept (r = .44), and Feedback (r =.46) significantly affected students' independent learning.

(7) *Career Development Experiences:* This measure, used as a scale only at the eleventh grade, tapped career development activities and experiences provided by the school. Students' scores increased significantly since 1987, reaching a new all-time high. And yet progress in this area has been slow since 1975. Continued attention to this area is certainly warranted. The fact that almost one-third of the eleventh grade students reported no exposure to career development experiences is cause for concern.

(8) *Career Awareness and Exploration:* This scale, also used only at the eleventh grade (except for selected items), measured whether students had given some thought to, and

initiated some activities concerned with, making a career choice. Levels of career exploration increased significantly in 1990, now approximating the level obtained in 1981. Thirty-one percent of the eleventh graders reporting no exposure to career development experiences (#7 above), 30 percent reporting low levels of participation here, and the results from specific career planning items (see #10 below) strongly suggest that the educational system may wish to continue to seek ways to stimulate greater student awareness and exploration of possible careers.

(9) *Enjoyment of School:* The results indicate that Enjoyment of School scores were essentially the same in 1990 as they were in 1987 for both Grades 5 and 11. However, at the fifth grade, Enjoyment of School did reach an all-time low. Utah educators should not ignore the needs of students who report being unhappy with school. Enjoyment of School was significantly enhanced by teachers' use of the educational processes measured by Reinforcement of Self-Concept (classroom r = .63), Development of Career Talents (r = .49), Academic Learning Time (r = .59), and Feedback (r = .59).

(10) *Career Planning:* Questions concerning procedures specifically relating to Utah career education objectives showed that less than half of the eleventh graders had worked with a counselor or teacher in preparing an individual education plan aimed at a career, and only 42% had a career goal on record. Limited use of career resource centers and interest inventories was observed, and only about one-third of the students felt sure that school will have prepared them for a good job after graduation. The data in this area show little in the way of positive change since 1987, and declines were noted between 1984 and 1987.

IV. EDUCATIONAL PROCESS MEASURES

CHAPTER IV

EDUCATIONAL PROCESS MEASURES

Information from students was used to assess the extent to which important educational processes were being used in Utah's classrooms. In describing educational processes, students are an important source of information since they are directly affected by and have a good opportunity to observe classroom practices.

Full scales for Reinforcement of Self-Concept, Development of Career Talents, and Expectations have been included in fifth grade Statewide Assessment batteries since 1975. At the eleventh grade, the full scales were used again for the first time since 1975; however, selected items from all these scales were used in intervening assessments at the eleventh grade. Two new scales, Academic Learning Time and Feedback, were included for the first time in 1984 at both grade levels. All five educational process scales are described in Exhibit 31. The use of such scales in the assessment process takes advantage of the latest research findings; such procedures are not characteristic of other assessment programs.

FREQUENCY OF USE OF EDUCATIONAL PROCESSES

Exhibit 32 shows the percentage of the fifth grade students choosing alternatives that describe high frequency of use for each of the educational process measures; results from 1990 and all of the previous assessments are shown. For example, Exhibit 32 shows that Reinforcement of Self-Concept in 1990 improved slightly over 1987 to the peak obtained in 1981. Based on analyses of total scores, not just selected alternatives, two of the five areas increased significantly (Reinforcement of Self-Concept and Expectations), two remained stable (Development of Career Talents and Feedback), and one declined (Academic Learning Time). Development of Career Talents, teaching strategies dealing with communication, decision making, forecasting, evaluation, etc., were the least often used.

Exhibit 33 shows the results obtained on the process measures for the eleventh grade. Only 1990 information is presented as comparable data were not available from recent assessments. The pattern of results was similar to that obtained at the fifth grade level; Development of Career Talents was the least often used (although slightly more often than at the fifth grade), followed by Reinforcement of Self-Concept, which was used somewhat less often at the eleventh grade than at the fifth grade. There was also somewhat less use of Feedback at the eleventh grade than at the fifth. Academic Learning Time was more effectively used at the eleventh grade level. Expectations were about the same for both.

Exhibit 34 presents the results on selected items from the educational process measures, one item from each scale. Item 1 in this exhibit is from the Reinforcement of Self-Concept

EXHIBIT 31
DESCRIPTION OF EDUCATIONAL PROCESS SCALES

Reinforcement of Self-Concept reflected students' perceptions of whether good performances were recognized. High scores on this 11-item scale indicated that the teacher very often made students feel good about themselves and their schoolwork, and that students were very often told when they had done a good job. The students in the class had a chance to see things other students had done well, were often encouraged to tell each other that they had done a good job, and were proud of the things that they did in class.

Development of Career Talents measured the reported amount of training students received in skills which had broader application than immediate academic content. Students in a class with a high average score on this 10-item scale reported that they were often involved in evaluation activities, including evaluation of their own work, other events, and ideas. They responded that they often talked about possible aspects of the future, how information learned in class could be used in different jobs, and how they might use what they were learning in class. They had activities where everyone had to think up new ideas, and where the students worked together on a group project.

Expectations was a measure of the students' perceptions of the amount of effort required of them in their class. Classes with high average scores on this 12-item scale had a high percentage of students who reported that their assignments usually required a considerable amount of work and that everyone in the class was expected to do his or her best. High scores also indicated that the students were expected to do a lot of work, to work about as hard as they could, and to try to learn all of the material.

Academic Learning Time measured students' perceptions of the amount of productive time spent on learning the subject matter. High scores on this 8-item scale indicated that students said there was little wasted time in the class; the teacher spent most of the time actually teaching (explaining the lesson) and made the lesson understandable. High scores also indicated that the lessons were seldom interrupted by students talking or not paying attention, and that a minimum of time was spent passing out papers, getting started, or getting materials.

Feedback measured students' perceptions of the amount of evaluative information they received about the quality of their work and ways to improve. High scores on this 5-item scale indicated that students often found out (from quizzes, homework, tests, etc.) how they were doing in class, were told of ways to improve their performance when their homework was discussed, and received help from the teacher when they had trouble. High scores also indicated that the students said the teacher looked carefully at the schoolwork they handed in and gave back grades on it in a timely manner.

EXHIBIT 32
FREQUENCY OF USE OF DIFFERENT INSTRUCTIONAL STRATEGIES AS INDICATED BY THE EDUCATIONAL PROCESS MEASURES, GRADE 5

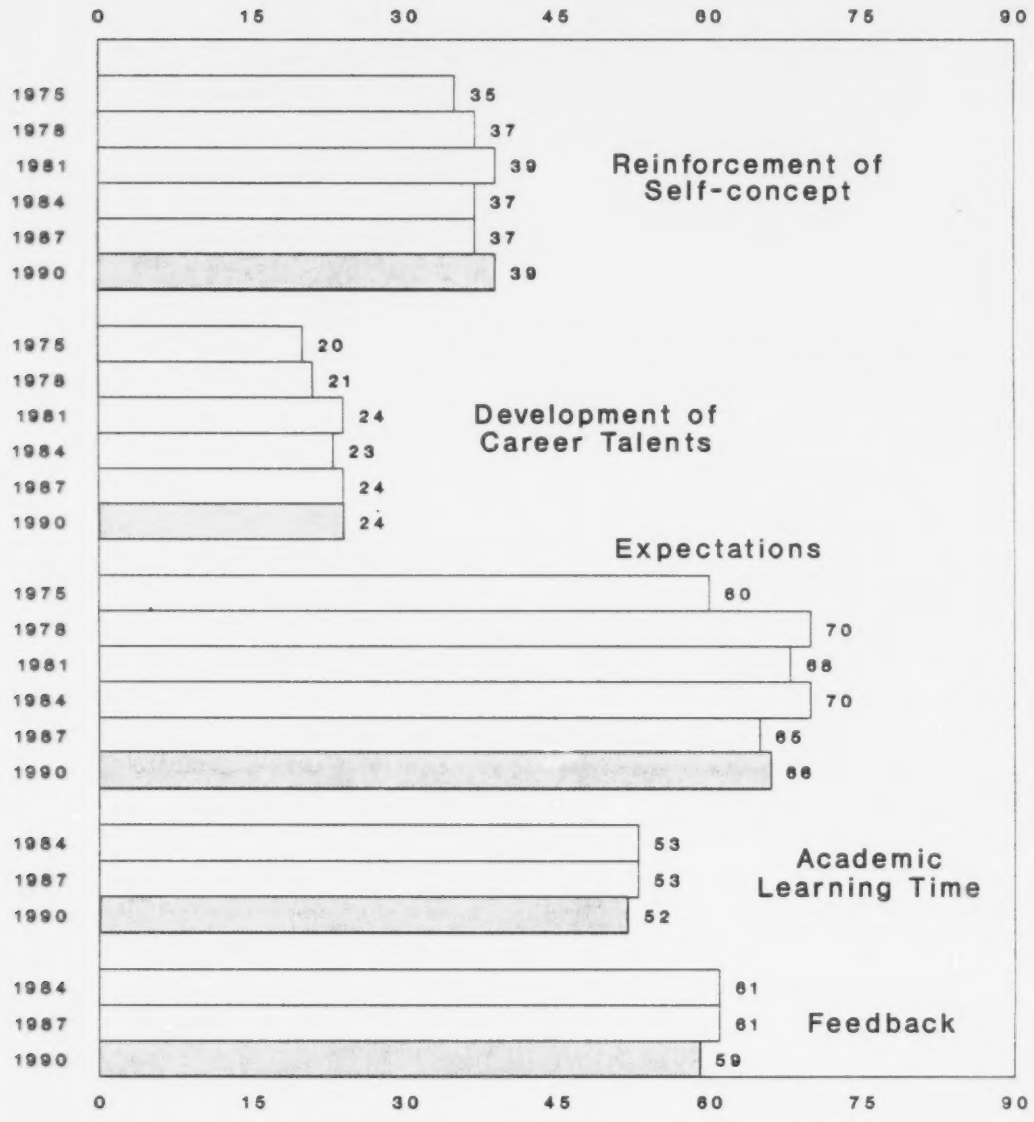


EXHIBIT 33
FREQUENCY OF USE OF DIFFERENT INSTRUCTIONAL STRATEGIES AS INDICATED BY THE EDUCATIONAL PROCESS MEASURES, GRADE 11

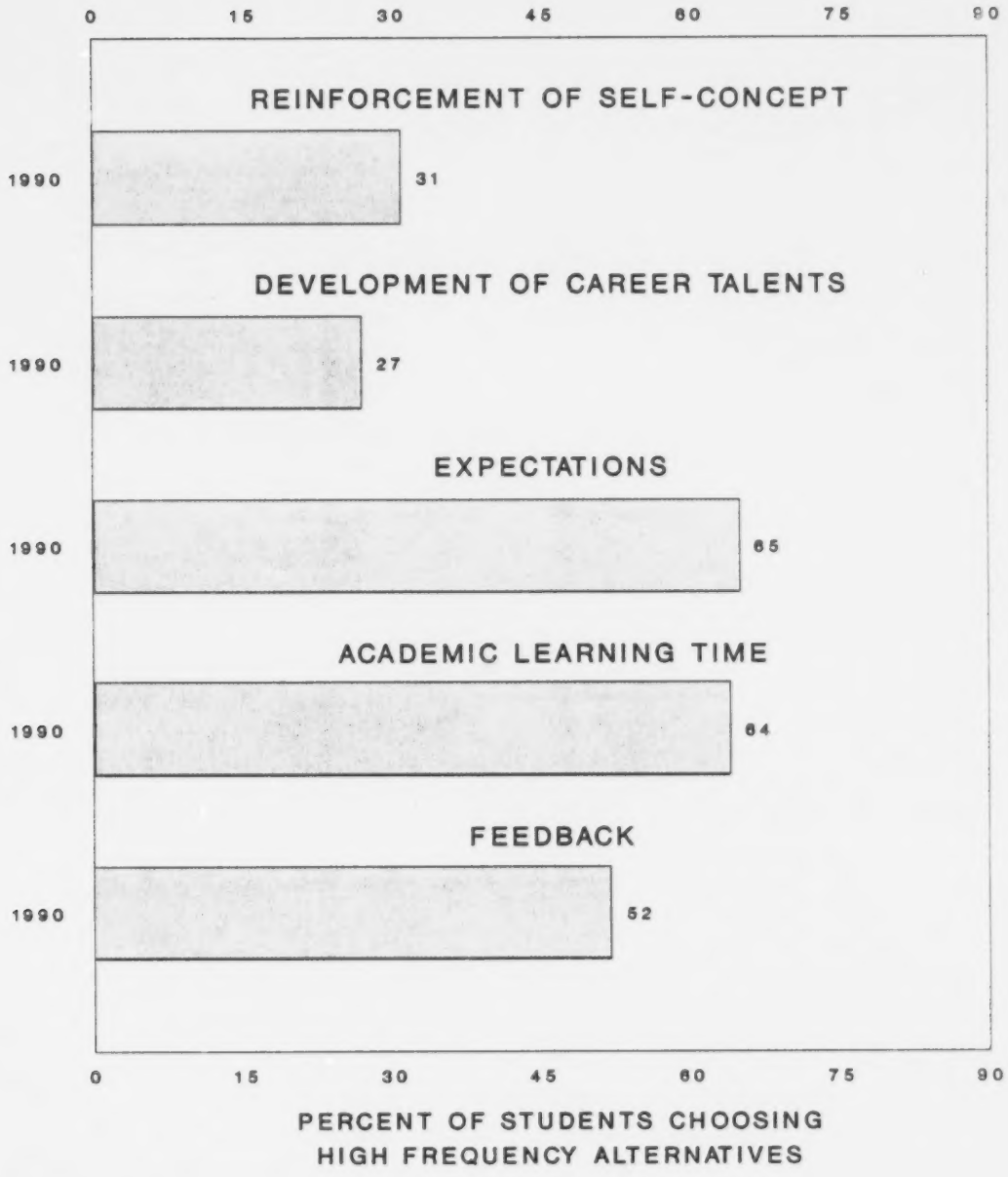


EXHIBIT 34

RESULTS FOR SELECTED EDUCATIONAL PROCESS ITEMS, GRADES 5 AND 11

Item	*Percent of Students Choosing Each Alternative*			
	Grade 5		*Grade 11*	
	1987	1990	1987	1990
1. How often do you hear about it when you have done a good job?				
A. Almost never	18%	20%	16%	21%
B. Rarely, once a month or so	23%	21%	24%	24%
C. Sometimes, about once a week	28%	27%	34%	30%
D. Often, 2 or 3 times a week	18%	20%	18%	17%
E. Very often, once a day or more	13%	13%	9%	8%
2. Does your class study how your lives will change in the future?				
A. Almost never	39%	39%	33%	30%
B. Rarely, once a month or so	24%	24%	28%	26%
C. Sometimes, about once a week	19%	20%	23%	21%
D. Often, 2 or 3 times a week	11%	11%	10%	14%
E. Very often, once a day or more	7%	7%	5%	8%
3. Does your teacher expect a student to work hard in this class to get a good grade?				
A. Almost always	58%	60%	61%	61%
B. Usually	26%	25%	30%	27%
C. Sometimes	11%	10%	8%	6%
D. Not very often	3%	2%	1%	3%
E. Almost never	2%	2%	0%	2%
4. How often do you find out (from quizzes, homework, tests, etc.) how you are doing in this class?				
A. Almost never	11%	12%	10%	8%
B. Rarely, once a month or so	18%	18%	22%	20%
C. Once every couple of weeks	23%	23%	39%	32%
D. About once a week	22%	21%	28%	25%
E. At least 2 or 3 times each week	26%	25%	0%	15%
5. Is there any wasted time in this class?				
A. Almost none	18%	18%	17%	17%
B. Very little	28%	27%	32%	32%
C. Some	38%	37%	36%	37%
D. Quite a lot	10%	10%	11%	10%
E. A great deal	6%	8%	4%	5%

scale, and the results show that fifth graders in 1990 perceived slightly more positive reinforcement than eleventh graders (with 33% selecting either alternative D or E at grade 5 versus 25% at grade 11); responses in both grades had changed relatively little since 1987. Item 2 is from the Development of Career Talents scale and shows that the percent of students who said they "often" or "very often" studied how their lives will change in the future had stayed remarkably the same from 1987 to 1990 at the fifth grade level, but had increased markedly (from 15% to 22%) at the eleventh grade Item 3 is from the Expectations scale, and the results exemplify the small increase in this score area at the fifth grade and the small decrease at the eleventh grade level in the percent of students reporting their teachers had high expectations. Item 4 is from the Feedback scale, and the results here illustrate that fifth graders received feedback more frequently than eleventh graders. Item 5 is from the Academic Learning Time scale and shows that eleventh graders reported slightly less wasted time in class than did fifth graders. Note that at both grade levels, almost 50% of the students responded "Very little" or "Almost none" to the question about wasted time in the classroom -- a positive result, but one that also leaves room for improvement.

Although the comparisons across time and across grades is informative and interesting, the results shown in Exhibits 32, 33, and 34 indicate that there are opportunities for improvement in the five process areas measured. A relatively small percentage, about a quarter, of the Utah students described their classrooms as having high use of Development of Career Talents, while only about a third reported high Reinforcement of Self-Concept and only about half reported high Academic Learning Time. The educational system may wish to devote more energy to assisting and encouraging teachers to make greater use of these educational processes.

RELATIONSHIPS WITH OUTCOME MEASURES

A brief summary of the highest relationships between the educational process measures and the educational outcome measures is presented in Exhibit 35. These results are from an analysis of students' responses about how often educational processes were used, averaged for each classroom and correlated with classroom-average student performance on the outcome measures.

As can be seen in Exhibit 35, the Reinforcement of Self-Concept scale had significant relationships with several outcome measures. Students who reported that their teacher gave frequent positive reinforcement tended to have higher scores on Academic Self-Concept, Peer Relations, Independent Development, and Enjoyment of School. In other words, they enjoyed school more, got along better with other students, felt more able to do their schoolwork, and engaged in greater numbers of independent learning activities out of school.

The Development of Career Talents scale was strongly related to Independent Development and Enjoyment of School. Students from classrooms with high levels of

EXHIBIT 35
RELATIONSHIPS OF EDUCATIONAL PROCESS MEASURES
WITH KEY PERFORMANCE MEASURES

Educational Process Measures	*Related Student Outcome Measures*
Reinforcement of Self-Concept	CTBS Mathematics Total (r=.25) Academic Self-Concept (r=.38)[1] Peer Relations (r=.35)[1] Independent Development (r=.44)[1] Enjoyment of School (r=.63)[1]
Development of Career Talents	CTBS Mathematics Total (r=.24) Independent Development (r=.48)[1] Enjoyment of School (r=.49)[1]
Expectations	Peer Relations (r=.27)[2] Independent Development (r=.28)[2]
Academic Learning Time	CTBS Reading Total (r=.29)[2] CTBS Language Expression (r=.31)[2] CTBS Mathematics Total (r=.37)[1] Academic Self-Concept (r=.50)[1] Peer Relations (r=.37)[1] Independent Development (r=.36)[1] Enjoyment of School (r=.59)[1]
Feedback	CTBS Reading Total (r=.23) CTBS Language Expression (r=.24) CTBS Mathematics Total (r=.36)[1] Academic Self-Concept (r=.42)[1] Peer Relations (r=.37)[1] Independent Development (r=.46)[1] Enjoyment of School (r=.59)[1]

[1] $p < .01$ [2] $p < .05$

Development of Career Talents (i.e., students often were involved in evaluation activities, talked about how information could be used in different jobs, talked about the future, talked about how they might use what they were learning in class, thought up new ideas, etc.) tended to report substantially more independent learning activities and greater enjoyment in school.

The Expectations scale was not significantly related to any of the outcome measures. This is a disturbing result; Expectations was significantly correlated with CTBS Mathematics and CTBS Reading scores in the earlier assessments, but has declined in predictive validity since 1978. The rationale behind the scale is that teachers who set higher goals stimulate higher levels of learning in students. That hypothesis is undoubtedly still valid. However, the pattern of relationships involving the Expectations scale and other measures including demographics such as race and SES has changed over time. Clearly, the validity of the Expectations scale has diminished, and it is unknown whether (or how much) this change is due to generational differences in students' interpretation of the scale, real changes in teachers' use of high standards with particular groups of students, or demographic changes in the student population. Although additional research is certainly needed to clarify the results obtained, teachers should continue to set realistically high expectations for their students, encouraging them to perform at high levels.

The Academic Learning Time scale was related to the CTBS Mathematics Total score, as well as Academic Self-Concept, Peer Relations, Independent Development, and, most strongly, Enjoyment of School. This indicates that not only do students learn more and feel more confident about their ability to learn, but they have better social relationships with other students and enjoy school more when teachers spend more time actually teaching and making the lessons understandable.

The Feedback scale was also significantly related to a number of outcome measures. Students who received more feedback about their work and ways to improve tended to have better feelings about their academic ability, better relationships with their peers, more out-of-school independent learning activities, and more fun in school.

Generally, the educational process measures had low relationships with socioeconomic status and other demographic measures. For example, neither school size nor locale (rural, suburban, or urban) were significantly related to any of the five educational process measures at the fifth grade classroom level of analysis. However, socioeconomic status was significantly related to some process measures in previous assessments and the relationships followed a similar pattern, but at a lower level, in 1990. That is, students in higher socioeconomic neighborhoods reported more positive reinforcement in their classrooms, more helpful teacher feedback, and greater amounts of productive learning time in school. Ideally, of course, teacher use of these classroom teaching processes should not be affected by student socioeconomic status. For example, the amount of productive time on learning tasks in a classroom should depend on good teaching, not on student family background.

SUMMARY

Educational processes were measured by information from the students as they described their classroom activities. These assessed the extent to which teachers in Utah use practices that impact on educational outcomes. The results indicate:

(1) *Reinforcement of Self-Concept:* At the fifth grade, scores on this scale increased, equalling the results obtained in 1981. But only 39% of all students reported high amounts of positive reinforcement from their teachers. Historical comparisons were not available at the eleventh grade; the results were somewhat less positive than those obtained at the fifth grade. In view of the fact that Reinforcement of Self-Concept was associated with students' Academic Self-Concept, Peer Relations, Independent Development, and Enjoyment of School, increased attention to this area appears appropriate.

(2) *Development of Career Talents:* Development of Career Talents has not changed since 1981 at the fifth grade level, and less than a quarter of the students reported high use of the teaching strategies assessed by the Development of Career Talents scale. Only a slightly higher percentage was obtained at the eleventh grade. Since these teaching techniques had a positive impact on Independent Development and Enjoyment of School, additional attention is also warranted here.

(3) *Expectations:* Although Expectations scores increased at the fifth grade over 1987, the results were still below those obtained in 1978 and 1984; 1990 results for the eleventh grade were similar. Scores on this scale were positively, but not significantly, related to Peer Relations and Independent Development. Although the empirical correlations with academic achievement scores were not significant, teachers are still encouraged to set high expectations for student effort in view of the importance of expectations and the limitations involved in this kind of assessment.

(4) *Academic Learning Time:* At the fifth grade, scores for Academic Learning Time have been essentially the same since 1984. They were clearly not as high as they could be, indicating room for improvement. Academic Learning Time assesses important teaching strategies; the measure was related to CTBS Mathematics Total score, as well as Enjoyment of School, Academic Self-Concept, Independent Development, and Peer Relations.

(5) *Feedback:* Feedback scores have not changed significantly at either grade level since the scale was first introduced in 1984. Classroom feedback was related to the CTBS Mathematics Total score, Enjoyment of School, Peer Relations, Independent Development, and Academic Self-Concept. In view of the importance of this measure, increased use of these teaching strategies appears warranted.

V. DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS

CHAPTER V

DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS

The demographic and school classification measures obtained on the sample were important since such variables can help explain differences in educational attainment among the students tested in the State of Utah. There are many possible explanations for the relationships found among the demographics and school classifications and the other variables studied in this project, but the socioeconomic status (SES) variable seemed to have pervasive effects. These effects have to be considered in interpreting the nature of the other demographic variables.

SOCIOECONOMIC STATUS

Throughout this report the significance and influence of SES on other measures has been discussed. While there can be no doubt about the impact of SES on the development of student capabilities and performance, the measure itself has not been discussed.

The present study followed the procedures developed originally in the 1975 Assessment, in which SES was defined by two subscores and a total score. The first subscore included indicators of financial socioeconomic status as measured by such items as the occupation of the father and mother, the number of books in the home, whether the student had a private place to study, etc. The second subscore contained items dealing with the education level achieved by the father and mother, the judged importance of education in the home, whether it was important for the student to go to college, etc. The total score was a composite of the two subscores. This total score has been referred to when relationships with SES have been discussed.

On the surface, the items in these scales have little explanatory power; they are a set of indicators which is not a complete sample of all the underlying concepts of SES. The characteristics and correlates of SES have been studied elsewhere with no clear agreement about how they interact or which are crucial. Some of the underlying characteristics that have been mentioned in a number of studies include family background, early learning experiences, influence of peer group, diet, genetic endowment, education of parents, aspirations of role models, etc. Not only is the objective environment a crucial concern, but the child's perception of it is important as well. While some of these separate components are difficult to quantify and measure, cumulatively they do have an effect as assessed by the relatively simple set of items included in the present study. They have such an effect, in fact, that Bryant, Glaser, Hansen, and Kirsch (1974) concluded that the effect of SES cannot be over emphasized and that SES alone would account for between 10 and 25 percent of the variance in academic scores.

The definition or nature of the crucial characteristics that underlie the measurement of SES are not necessarily the concern of the educational system. Rather, the educational system must be directed toward helping to overcome any disadvantages of children from lower SES families and providing them with at least equal opportunities to develop their capabilities.

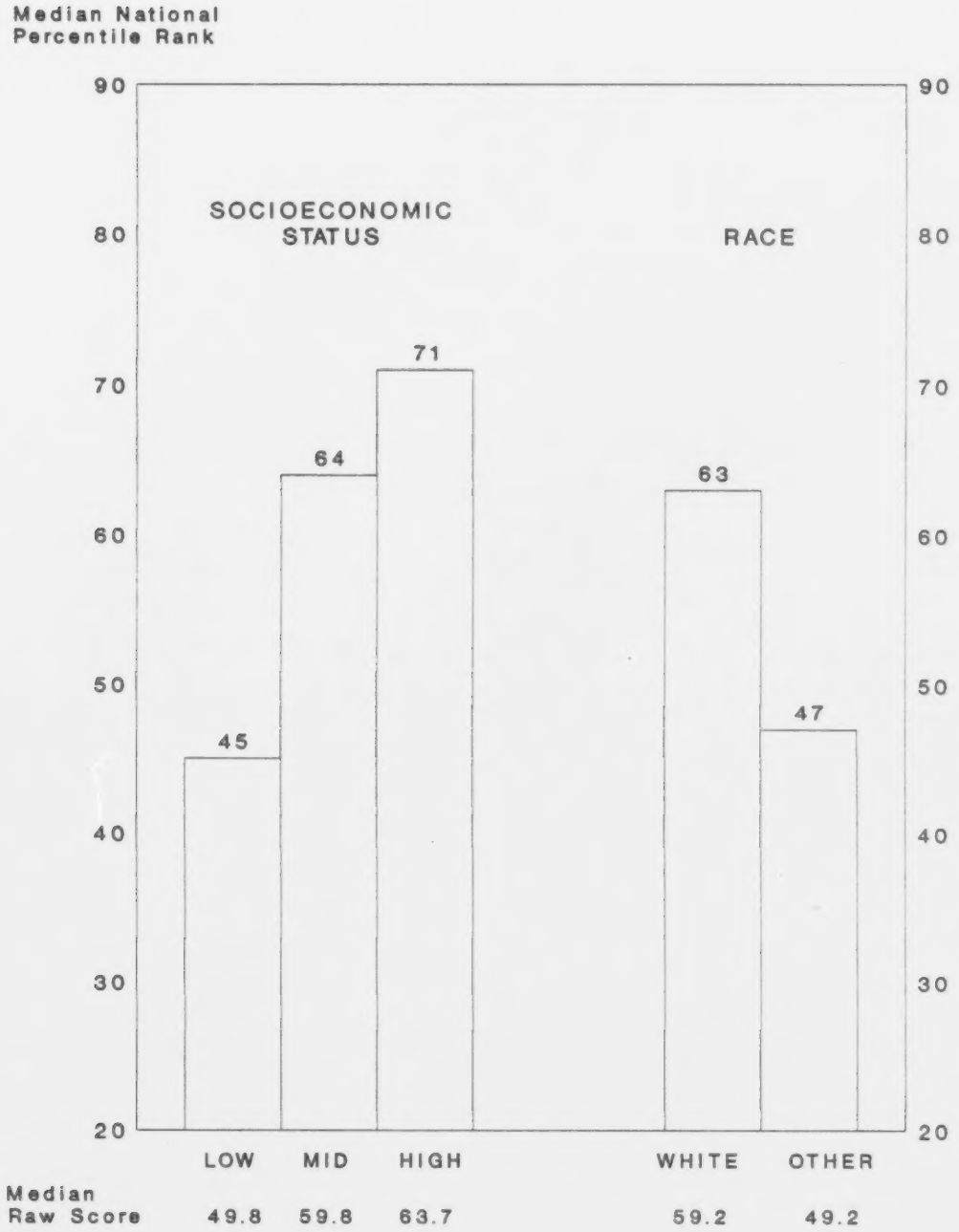
At the fifth grade level in this assessment, the effects of SES were strongest on the basic achievement test scores (with student-level correlations of .40 with Mathematics Computation and .41 with Reading Total). The relationships were also significant between SES and Academic Self-Concept (r = .33), Peer Relations (r = .28), and Independent Development (r = .31). Further, SES was significantly related to classroom-level scores on the educational process measures of Reinforcement of Self-Concept (r = .33), Academic Learning Time (r = .32), and Feedback (r = .35).

The effects of SES at the eleventh grade level were equally pervasive. Certainly SES made a substantial impact on the basic achievement of students (with correlations of .37 with Reading Total, .36 with Mathematics Total, and .42 with Language Expression). The correlation between SES and the CTBS Reading Total (r = .37) score is illustrated by the left portion of Exhibit 36. Here, the SES scores on students have been categorized into three approximately equal-size groups--low, middle, and high. Notice the dramatic increase in median percentile rank scores as you look across these categories. These results illustrate the impact of SES on educational outcomes. Schools serving different SES neighborhoods can be expected to have markedly different test results. These differences illustrate the importance of paying attention to SES in district and statewide testing programs.

Other educational outcome measures at the eleventh grade were also related to SES, but at lower levels: Academic Self-Concept (r = .27), Independent Development (r = .15), Career Awareness and Exploration (r = .18), and Enjoyment of School (r = .22). However, Career Development Experiences--presumably heavily influenced by school activities--was not affected by the students' SES (r = -.02), even though students' Mathematics Class Experience was fairly strongly affected (r = .33).

Clearly, the impact of SES is widespread and frequently of substantial size. It affects not just basic achievement but also emotional, social, and productive maturity. There are no easy answers for how the impact of SES can be overcome. Certainly, the problem should concern society as a whole, not just the educational system. In this study, even the use of key educational processes appeared to be significantly influenced by students' SES. Opportunities remain for educators to reduce the impact of SES on educational outcomes by enhancing the school experience of all students.

EXHIBIT 36
RESULTS ON CTBS READING TOTAL SCORE BY SOCIOECONOMIC STATUS AND RACE, GRADE 11



RACE

White students tended to have higher scores on the CTBS achievement tests than did minority students. While the correlation (r = .19) at the eleventh grade between Reading Total and a binary variable (coded "white" = 1 and "other" = 0) would probably be described as limited, the difference in median percentile ranks on the Reading Total scores obtained by these two groups (63 vs 47) was quite striking (as shown on the right side of Exhibit 36), although less striking than in the 1987 assessment when the percentile ranks of the two groups were more extreme (65 and 37). These results indicate that progress has been made and that further progress is needed in assisting minority and disadvantaged groups. Furthermore, the results illustrate that district and statewide assessment programs must consider these kinds of variables in interpreting achievement test results.

Part of these racial differences might be explained by the cultural bias which has been attributed to standardized achievement tests--whites typically have some advantage on such tests. Furthermore, race and SES are related to each other (the correlation was .18 between SES and the binary race variable on eleventh grade students); if the effects of SES were taken into account, then the performance of the minority students would more nearly approximate that of the white students.

Racial differences of any consequence were generally not found on the measures of other educational outcomes. Whites did tend to have higher scores on the scales for Academic Self-Concept and Career Awareness and Exploration, but the differences were limited. On all the other measures, minority students scored at about the same level as white students. Thus, minority students' potentials were not comprehensively assessed by traditional academic achievement tests, and other sources of information should also be used routinely by the educational system.

SEX

There were minor sex differences evident in the educational outcome data. At the fifth grade, girls tended to have slightly higher achievement scores than boys while, at the eleventh grade, girls still tended to have higher scores than boys in Reading Comprehension and Language Expression, but had slightly lower scores than boys on the mathematics measures. The performance of girls on Mathematics Concepts and Applications moved closer to that of boys in 1990 compared to results obtained in 1987, although the girls continued to take fewer mathematics courses, reflected in their slightly lower scores for Mathematics Class Experience. These minor sex differences in basic skills performance should be contrasted with results from such programs as the American College Testing (ACT) program where high school males scored much higher in mathematics and science than did females (Nelson, 1990).

Girls at the eleventh grade level tended to have higher scores than boys for Peer Relations and Extracurricular Activities. Girls at the fifth grade level tended to report greater enjoyment of school than did boys, but only by a very small amount.

SCHOOL SIZE AND LOCALE

School size and locale are fairly closely related to each other in Utah. For example, about 62% of the small elementary schools are located in rural areas, whereas about 75% of the large elementary schools are suburban. All of the small high schools are in rural areas, whereas about 71% of the large high schools are suburban. For this reason, school size and locale are discussed together here.

School size had no significant relationships with any of the educational outcome measures at the fifth grade level. That is, students from small elementary schools did about as well on the educational attainment variables as students from larger elementary schools, and vice versa. The same was true of fifth grade students from rural, suburban, and urban schools: there were essentially no differences in their performance on the assessment measures.

Results obtained at the eleventh grade during this assessment tended to parallel those obtained at the fifth grade. There was a tendency for students in large schools and urban schools to do slightly better on the CTBS Reading Vocabulary and the Reading Total scores. And, not surprisingly, students in large schools tended to have higher scores on the Mathematics Class Experience scale, meaning that they had taken more high school mathematics classes than students in small rural schools. But for the most part these differences were not great and no significant differences were noted on the other outcome measures. These findings are in marked contrast to differences observed between students from large and small high schools who took the ACT which involves higher level skills. In this case, students from larger schools have demonstrated substantially higher scores (Nelson, 1990).

SUMMARY

The demographics and school classifications of the sample were of interest for the information they provided that might explain differences in educational attainment. The variables examined were socioeconomic status (SES), race, sex, school size, and school locale. The results indicate:

(1) *Socioeconomic Status:* SES was the demographic measure most strongly related to the educational outcome measures. SES was also related to some of the classroom educational processes measured. As in previous assessments, students from lower SES

backgrounds typically had significantly lower scores on all academic achievement tests and most other outcome measures. These findings confirm a continuing need for special programs for the disadvantaged.

(2) *Race:* Minority students tended to have slightly lower basic achievement scores than whites. This difference was at least partially explained by differences in SES.

(3) *Sex:* Girls in the fifth grade tended to have slightly higher achievement test scores. Girls in the eleventh grade tended to have slightly higher Reading Comprehension and Language Expression scores, although boys had slightly higher scores for the mathematics measures. The last finding is probably related to the fact that boys tended to take more high school mathematics classes. Eleventh grade girls tended to have higher scores for Peer Relations and Extracurricular Activities.

(4) *School size and locale:* Students in large high schools and in urban high schools had slightly higher Reading Vocabulary and Reading Total scores; they also tended to have taken more mathematics classes. Otherwise, neither school size nor locale were significantly related to educational outcome measures.

VI. SUMMARY AND RECOMMENDATIONS

CHAPTER VI

SUMMARY AND RECOMMENDATIONS

This report has presented information about the performance of the Utah fifth and eleventh grade students tested in the 1990 Utah Statewide Educational Assessment. Performance was measured in the areas of basic skills achievement, emotional maturity, social maturity, aesthetic maturity, productive maturity, and attitude toward school. Also examined were results from a set of educational process measures and demographic information. Since summaries have been presented at the end of each results chapter, this chapter will present a review of the overall pattern of change from 1987, followed by key findings and recommendations for educators.

OVERALL PATTERN OF CHANGE FROM 1987

The 1990 Statewide Educational Assessment results highlighted areas which were very strong and areas which could benefit from increased emphasis in the public schools. A comparison of the 1987 and 1990 Utah Statewide Educational Assessments showed different profiles of changes for the fifth and eleventh grade students.

Exhibits 37 and 38 illustrate the general profiles of results for the fifth and eleventh grades, respectively, showing the direction of changes in scores from 1987 to 1990. If the change in a score area was so slight as to be not statistically significant, then it was described as "stable". Otherwise, the direction of the change was indicated. For example, Exhibit 37 shows that the fifth grade score for CTBS Reading Total was stable, while Language Expression decreased by a statistically significant amount (beyond what could be expected by chance), and Mathematics Total increased.

At the fifth grade level, as depicted in Exhibit 37, there were five statistically significant increases out of the twelve measures which were used in both 1987 and 1990, a very positive outcome. The positive changes occurred in Mathematics Total, Peer Relations, Independent Development, Reinforcement of Self-Concept, and Expectations. Significant decreases occurred for only two scores -- CTBS Language Expression and Academic Learning Time.

At the eleventh grade level, as depicted in Exhibit 38, the results were also positive. Of the 13 measures used in both 1987 and 1990, the level of performance increased by significant amounts on four measures while nine measures remained stable. There were no significant declines from 1987 to 1990 at the eleventh grade, again, a positive report about educational outcomes. The gains were observed on Mathematics Class Experience, Independent Development, Career Development Experiences, and Career Awareness and Exploration.

EXHIBIT 37
PROFILE OF STATISTICALLY SIGNIFICANT
CHANGES IN SCORES, 1984-1987, GRADE 5

SCORE AREA	CHANGE SINCE 1987*		
BASIC SKILLS ACHIEVEMENT			
CTBS Reading Total		stable	
CTBS Language Expression	decrease		
CTBS Mathematics Total			increase
ATTITUDES AND OTHER CHARACTERISTICS			
Academic Self-Concept		stable	
Peer Relations			increase
Independent Development			increase
Enjoyment of School		stable	
EDUCATIONAL PROCESSES			
Reinforcement of Self-Concept			increase
Development of Career Talents		stable	
Expectations			increase
Academic Learning Time	decrease		
Feedback		stable	

* Only statistically significant changes ($p < .05$) have been noted.

EXHIBIT 38
PROFILE OF STATISTICALLY SIGNIFICANT
CHANGES IN SCORES, 1984-1987, GRADE 11

SCORE AREA	CHANGE SINCE 1987*	
BASIC SKILLS ACHIEVEMENT		
CTBS Reading Total	stable	
CTBS Language Expression	stable	
CTBS Mathematics Total	stable	
Mathematics Class Experience		increase
ATTITUDES AND OTHER CHARACTERISTICS		
Academic Self-Concept	stable	
Peer Relations	stable	
Extracurricular Activities	stable	
Independent Development		increase
Career Development Experiences		increase
Career Awareness and Exploration		increase
Enjoyment of School	stable	
EDUCATIONAL PROCESSES		
Academic Learning Time	stable	
Feedback	stable	

* Only statistically significant changes ($p < .05$) have been noted.

BASIC SKILLS ACHIEVEMENT: KEY FINDINGS

Reading

At both the fifth and eleventh grades, the reading achievement of Utah students remained essentially stable between 1987 and 1990. The 1990 Utah results exceeded the 1988 national norms slightly at the fifth grade (54th percentile) and more markedly at the eleventh grade (61st percentile).

Language Expression

At both the fifth and eleventh grades, the Language Expression scores for Utah students declined from 1987 to 1990; the change was significant at Grade 5 and only slight at Grade 11. However, Language Expression skills were still high at the eleventh grade, at the 59th percentile, and barely below the 1988 national average at the fifth grade level, at the 49th percentile.

Mathematics

At both the fifth and eleventh grades, Utah students had higher levels of achievement than the 1988 national norms and a clear pattern of growth since the earliest assessment in 1975. Grade 5 performance has increased since 1987 while the performance of eleventh grade students remained stable compared to 1987.

Mathematics Class Experience

More Utah eleventh grade students in 1990 had taken advanced mathematics courses than in 1987. Students who had taken these mathematics courses had substantially higher mathematics achievement than students who had not taken the courses. These results are reflected in the generally higher mathematics results obtained since 1975.

BASIC SKILLS ACHIEVEMENT: RECOMMENDATIONS

(1) Continue to encourage high school students, especially those bound for college, to take higher-level courses in mathematics, science, etc. Students who take such courses tend to learn more and have higher levels of academic achievement. Although Utah students currently perform above the national average on tests of basic skills, they do not perform as well on the higher level ACT mathematics score.

(2) Explore options for improving Language Expression. Performance declined at both grade levels. Providing feedback about language usage in all curriculum areas is a way of finding additional time in already crowded schedules.

(3) Foster the use of teaching strategies known to encourage high levels of student performance. These include the educational processes described throughout this report as well as the use of clearly defined, relevant instructional objectives.

STUDENT ATTITUDES AND OTHER CHARACTERISTICS: KEY FINDINGS

Academic Self-Concept

Student scores for Academic Self-Concept increased slightly and to all-time highs. Students with high scores on Academic Self-Concept tended to have high scores on all the other educational outcome measures. For example, students with high Academic Self-Concept scores also tended to be above average on the tests of basic academic skills and to have higher scores for Enjoyment of School.

Peer Relations

Both fifth grade and eleventh grade scores on Peer Relations increased since 1987: at the eleventh grade, scores reached a new all-time high, and the scores for fifth grade students increased significantly. Students with high scores on Peer Relations tended to have high scores on most of the other outcome measures, excluding basic skills achievement. For example, students with higher Peer Relations scores tended to have higher Academic Self-Concept scores. Grade 11 girls had higher Peer Relations scores than boys.

Extracurricular Activities

Assessed only at the eleventh grade level, this scale was stable compared to 1987; it was still well below the 1975 level. Students with higher levels of extracurricular participation tended to have somewhat higher scores for Peer Relations and Independent Development. Girls were more likely than were boys to participate in the types of non-athletic activities measured by this scale.

Music Achievement

Given the five items used to assess music achievement, Grade 5 students improved their performance compared to 1987 on four out of the five; at the eleventh grade, student performance more nearly approximated the results obtained in 1987.

Art Achievement

Based on the five items included in the assessment battery, art achievement among Utah students appears to have improved slightly at both grade levels.

Independent Development

The good news is that Independent Development scores increased significantly at both the fifth and eleventh grade; the bad news is that a large portion (43-44%) of students in Grades 5 and 11 reported low levels of independent learning activities. Furthermore, scores on this scale have been essentially level since 1975, in spite of the fact that the educational process measures offer opportunities for improving this important student outcome. Students with high scores on Independent Development tended to have high scores on most of the other outcome measures.

Career Development Experiences

This scale, used only at the eleventh grade, measured the career development activities and experiences provided by the school. Students' scores increased significantly since 1987, reaching a new all-time high. And yet progress in this area has also been slow since 1975. Continued attention to this area is certainly warranted. The fact that more than one-third of the eleventh grade students reported no exposure to career development experiences is cause for concern.

Enjoyment of School

The results indicate that Enjoyment of School scores were essentially the same in 1990 as they were in 1987 for both Grades 5 and 11. However, at the fifth grade, Enjoyment of School did reach an all-time low. Utah educators should not ignore the needs of students who report being unhappy with school.

Career Awareness and Exploration

This scale, used only at the eleventh grade, measured whether students had given some thought and initiated some activities concerned with making a career choice. Levels of career exploration increased significantly in 1990, now approximating the level obtained in 1981. Results from specific career planning items strongly suggest that the educational system may wish to continue to seek ways to stimulate greater student awareness and exploration of possible careers.

Career Planning

The results for selected career planning items, used only with eleventh grade students, showed some limitations in time being devoted to career planning; e.g., only 42% of students had specified a career goal and only 33% of the students felt their school provided enough training to get a good full time job after graduation.

STUDENT ATTITUDES AND OTHER CHARACTERISTICS: RECOMMENDATIONS

(4) Include in the curriculum specific strategies aimed at raising the Academic Self-Concept of all students by developing success experiences and reducing failures (without lowering standards). Develop learning experiences that provide positive recognition of individual student performances.

(5) Recognize different educational goals and needs, especially the academic background required for different careers. Curriculum offerings, counseling, and the Student Education Plan process should be coordinated with career plans for individual students to provide the appropriate educational background for student development.

(6) Stimulate greater student awareness and exploration of possible careers. Place more emphasis on developmental experiences, planning,and decision making with respect to future career choices. Expand programs for students to get actual work experience, either as part of the curriculum or through outside work.

(7) Actively seek to involve business and industry in public education in mutually advantageous ways. Integrating the resources of business and industry into the educational system should substantially enhance career education efforts.

(8) Explore a variety of strategies to improve students' enjoyment of school. Scores on Enjoyment of School reached all-time lows for fifth grade students. Strategies which make school more enjoyable for students include reinforcement of self-concept, development of career talents, more productive academic learning time, and the use of appropriate feedback.

EDUCATIONAL PROCESS MEASURES: KEY FINDINGS

Reinforcement of Self-Concept

At the fifth grade, scores on this scale increased significantly, equalling the results obtained in 1981. But only 39% of all students reported high amounts of positive reinforcement from their teachers. Historical comparisons were not available at the eleventh grade; although the results were somewhat less positive than those obtained at the fifth grade. In view of the fact that Reinforcement of Self-Concept was associated with students' Academic Self-Concept, Peer Relations, Independent Development, and Enjoyment of School, increased attention to this area appears appropriate.

Development of Career Talents

Development of Career Talents has not changed since 1981 at the fifth grade level -- less than a quarter of the students reported high use of the teaching strategies assessed by the Development of Career Talents scale. Only a slightly higher percentage was obtained at the eleventh grade. Since these teaching techniques had a positive impact on Independent Development, Enjoyment of School, Peer Relations, and Academic Self-Concept, additional attention is also warranted here.

Expectations

Although expectations scores increased at the fifth grade over 1987, the results were still below those obtained in 1978; 1990 results for the eleventh grade were similar. Although the empirical correlations with academic achievement scores were not significant, teachers are still encouraged to set high expectations for student effort in view of the importance of Expectations and the limitations involved in this kind of assessment.

Academic Learning Time

At the fifth grade, scores for Academic Learning Time have been essentially the same since 1984. They were clearly not as high as they could be, indicating room for improvement. Academic Learning Time assesses important teaching strategies; the measure was related to the Mathematics Total score, as well as Enjoyment of School, Academic Self-Concept, Independent Development, and Peer Relations.

Feedback

Feedback scores have not changed significantly at either grade level since the scale was first introduced in 1984. Classroom feedback was related to the Mathematics Total score, Enjoyment of School, Peer Relations, Independent Development, and Academic Self-Concept. In view of the importance of this measure, increased use of these teaching strategies appears warranted.

EDUCATIONAL PROCESS MEASURES: RECOMMENDATIONS

(9) Expand teachers' use of reinforcement of self-concept. Teachers should praise students for good work and should develop learning experiences which provide positive recognition of individual student performances.

(10) Focus teacher attention on academic learning time to increase the amount of class time spent productively learning the lesson with a high rate of student success. According to students, class time for many teachers was not used efficiently.

(11) Make greater use of teaching techniques aimed at the development of career talents such as creativity, decision-making, and planning. These techniques enhance students' independent development, self-concept, and enjoyment of school. They also increase student potential for later life accomplishment. Use of a reward system for out-of-class learning activities is another strategy for stimulating student growth in areas related to adult accomplishment.

(12) Set high expectations for student effort and achievement, while remaining sensitive to students' ability level and instructional needs. Both high-achieving and low-achieving students should be expected to make (and be rewarded for making) their best efforts, although the lessons taught and work assigned may be quite different. Teachers might try having students discuss their own goals and standards for achievement.

DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS: KEY FINDINGS

Socioeconomic Status (SES)

SES was the demographic measure most strongly related to the educational outcome measures. SES was also related to some of the classroom educational processes measured. As in previous assessments, students from lower SES backgrounds typically had significantly lower scores on all academic achievement tests and most other outcome measures. These findings confirm a continuing need for special programs for the disadvantaged.

Race

Minority students tended to have slightly lower basic achievement scores than whites. This difference is partially explained by differences in SES.

Sex

Girls in the fifth grade tended to have slightly higher scores for Reading Comprehension, Language Expression, and Mathematics Computation. Girls in the eleventh grade tended to have slightly higher Language Expression scores, and they also moved closer to the scores of boys on Mathematics Concepts and Applications, although they still continued to take fewer mathematics courses. Eleventh grade girls also tended to have higher scores for Peer Relations and Extracurricular Activities.

School Size and Locale

Students in small high schools and in rural high schools had slightly lower Vocabulary scores. Otherwise, neither school size nor locale were significantly related to educational outcome measures.

DEMOGRAPHICS AND SCHOOL CLASSIFICATIONS: RECOMMENDATIONS

(13) Examine all opportunities to aid disadvantaged students in developing their capabilities and, thus, provide for real equality of educational opportunity. Continued efforts are necessary to overcome the problems of the disadvantaged students; the results from low SES schools constitute a continuing and difficult challenge for Utah educators.

(14) In lower SES schools, pay particular attention to making greater use of specific teaching strategies (academic learning time, development of career talents, reinforcement of self-concept, etc.) in classrooms.

(15) Attend to SES and other demographic differences when attempting to compare the overall performance of different schools or school districts. The teaching effectiveness in a school in a low-income neighborhood may be as good or better than in a school in an upper-income neighborhood, even though average academic achievement test scores might suggest the opposite. These realities make school-by-school comparisons difficult at best. Interpretation of such data must be made very cautiously and in light of a variety of information.

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APPENDIX A

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1990 SAMPLE SIZES, MEANS, MEDIANS, AND STANDARD DEVIATIONS FIFTH GRADE INDIVIDUALS

Variable	*N*	*Mean*	*Median*	*SD*
CTBS Vocabulary	4743	24.91	25.38	7.22
CTBS Comprehension	4830	33.32	35.50	10.19
CTBS Reading Total	4610	58.43	60.74	16.39
CTBS Language Expression	4826	31.95	32.63	8.44
CTBS Mathematics Computation	4806	29.12	30.28	9.10
CTBS Mathematics Concepts & Applications	4795	29.64	30.01	9.78
CTBS Mathematics Total	4768	58.80	60.06	17.68
Academic Self-Concept	4359	101.81	102.24	5.13
Peer Relations	4359	100.97	100.90	7.95
Independent Development	4359	97.95	97.43	8.18
Enjoyment of School	4359	98.96	98.54	5.12
Reinforcement of Self-Concept	4621	101.18	101.68	5.60
Development of Career Talents	4620	98.31	97.94	4.55
Expectations	4621	105.35	105.85	4.41
Academic Learning Time	4621	100.21	100.20	3.08
Feedback	4621	100.64	100.74	2.40
Socioeconomic Status--Financial	4621	103.17	103.35	3.37
Socioeconomic Status--Educational	4617	100.94	100.79	2.19
Socioeconomic Status--Total	4620	104.10	104.18	4.63

APPENDIX A, CONTINUED

1990 SAMPLE SIZES, MEANS, MEDIANS, AND STANDARD DEVIATIONS
ELEVENTH GRADE INDIVIDUALS

Variable	*N*	*Mean*	*Median*	*SD*
CTBS Vocabulary	926	25.80	26.27	7.20
CTBS Comprehension	883	30.86	31.88	9.14
CTBS Reading Total	864	56.63	58.30	15.25
CTBS Language Expression	874	31.96	33.13	8.57
CTBS Mathematics Computation	875	25.55	25.89	9.19
CTBS Mathematics Concepts & Applications	853	26.42	25.93	8.75
CTBS Mathematics Total	845	52.32	52.68	16.87
Mathematics Class Experience	896	101.19	101.46	2.65
Academic Self-Concept	900	100.42	100.36	5.63
Peer Relations	900	103.94	104.98	8.11
Extracurricular Activities	896	98.27	97.67	4.26
Independent Development	900	98.45	98.31	8.35
Career Development Experiences	896	99.68	99.65	4.98
Career Awareness and Exploration	896	108.22	108.74	7.11
Enjoyment of School	900	99.96	100.30	5.05
Reinforcement of Self-Concept	924	99.61	99.92	6.46
Development of Career Talents	924	98.92	98.54	4.99
Expectations	924	104.48	105.49	5.91
Academic Learning Time	924	101.72	101.95	3.65
Feedback	924	99.93	99.90	2.57
Socioeconomic Status--Financial	896	104.70	104.90	2.98
Socioeconomic Status--Educational	896	102.27	102.66	1.73
Socioeconomic Status--Total	896	106.97	107.33	4.06